Devoted to
TEXTILE
CHEMISTRY
BLEACHING
DYEING
PRINTING
FINISHING

JANUARY 13, 1947
VOLUME 36, No. 1

AMERICAN DYESTUFF REPORTER

JAN 27

It came through

As widely used as any Chrome Yellow, *Erio Chrome Flavine A Conc.* proved itself during the war — proved that it could stand the wet finishing processes — proved that it stood up better than any other yellow to the rigors of weathering.

Back to civilian life, it takes its place in the dyehouse of discriminating mills — mills looking to put out the best product they know how.

GEIGY COMPANY, INC.

89-91 BARCLAY STREET — NEW YORK—NEW YORK

Boston · Providence
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Geigy
Dyestuff Makers Since 1859

In Great Britain
The Geigy Co., Ltd.
National Buildings
Parsonage, Manchester

OFFICIAL PUBLICATION
of the
PROCEEDINGS
AMERICAN ASSOCIATION
OF TEXTILE CHEMISTS
AND COLORISTS

MEET YOUR NEEDS FOR SUPERIOR SMOOTHNESS AND SUPPLENESS *with...*

DECERESOL 1861 SOFTENER

1. SUPERIOR SMOOTHNESS and suppleness of hand in woolens, cottons, rayons and other specialties. Softening qualities retained after laundering and dry cleaning.

2. REDUCED BLEEDING of direct colors...*cracking* of naphthol colors. Minimizes gas-fading of certain acetate colors.

3. HIGH COMPATABILITY with gums, starches, solvents, acids and dilute alkalies (less than 1% NaOH).

4. SATISFACTORY REACTIONS with sulphonated oils and casein solutions, when used in proper ratios.

5. GOOD DISPERSION AND STABLE SUSPENSION... eliminates need for additional wetting agents in most instances.

DECERESOL* 1861 Softener . . . a durable, exceptionally compatible, odorless, surface active colloidal material . . . "engineered" to meet the demands of modern high speed textile processing, it imparts exceptional elasticity to yarns, fabrics, knitgoods.

Be sure to send for Technical Bulletin giving general properties and full applications details.

★

AMONG CYANAMID PRODUCTS FOR THE TEXTILE INDUSTRY ARE . . . Penetrants, Softeners, Finishes, Sizing Compounds, DECERESOL* Wetting Agents, PARAMUL** 115 Water Repellent, and other Specialties and Heavy Chemicals

*Reg. U. S. Pat. Off. **Trade-mark

AMERICAN CYANAMID COMPANY PRODUCTS

Industrial Chemicals Division **AMERICAN CYANAMID COMPANY**

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

American Dyestuff Reporter, Vol. 36, No. 1, January 13, 1947. Published every other Monday. Copyright 1947, by Howes Publishing Co., One Madison Ave., New York 10, N. Y. Domestic subscription, $5.00; Canadian, $6.00; Foreign, $6.00 Entered as second-class matter, Nov. 6, 1919, at the New York, N. Y., Post Office, under the act of March 3, 1879.

DYESTUFFS

DYESTUFFS • CHEMICALS • INTERMEDIATES

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Greenwich & Morton Sts.

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VAT DYES OF THE DOW CHEMICAL COMPANY

Where Freedom from Iron is a "Must" Use Hooker Sulfides

Eight parts per million (.000008 of a pound per pound of product) is as much iron as you will ever find in a pound of Hooker Sodium Sulfide. Manufacturing refinements and purification techniques developed by Hooker chemical engineers bring you this Sulfide that can be safely used in practically every case where an iron free sulfide is needed. And in Hooker Sodium Sulfhydrate the iron content has been brought down to a maximum of 5 parts per million.

Where your processes require sulfides, you can be sure of purity of your products by using uniformly high purity Hooker Sodium Sulfide and Sodium Sulfhydrate. A request on your company letterhead will bring Technical Data Sheets and samples.

SODIUM SULFIDE, Na_2S, a light yellow colored solid in flake form, soluble in water, slightly soluble in alcohol, insoluble in ether.

Analysis

Sodium Sulfide	60 to 62%
Sodium Chloride	1.5% Max.
Other Sodium Salts	2.0% Max.
Iron	8ppm Max.
All other metals	1ppm Max.
Water of Crystallization	36.5 to 34.5%

Shipping Containers, Drums 90 and 350 lbs. net.

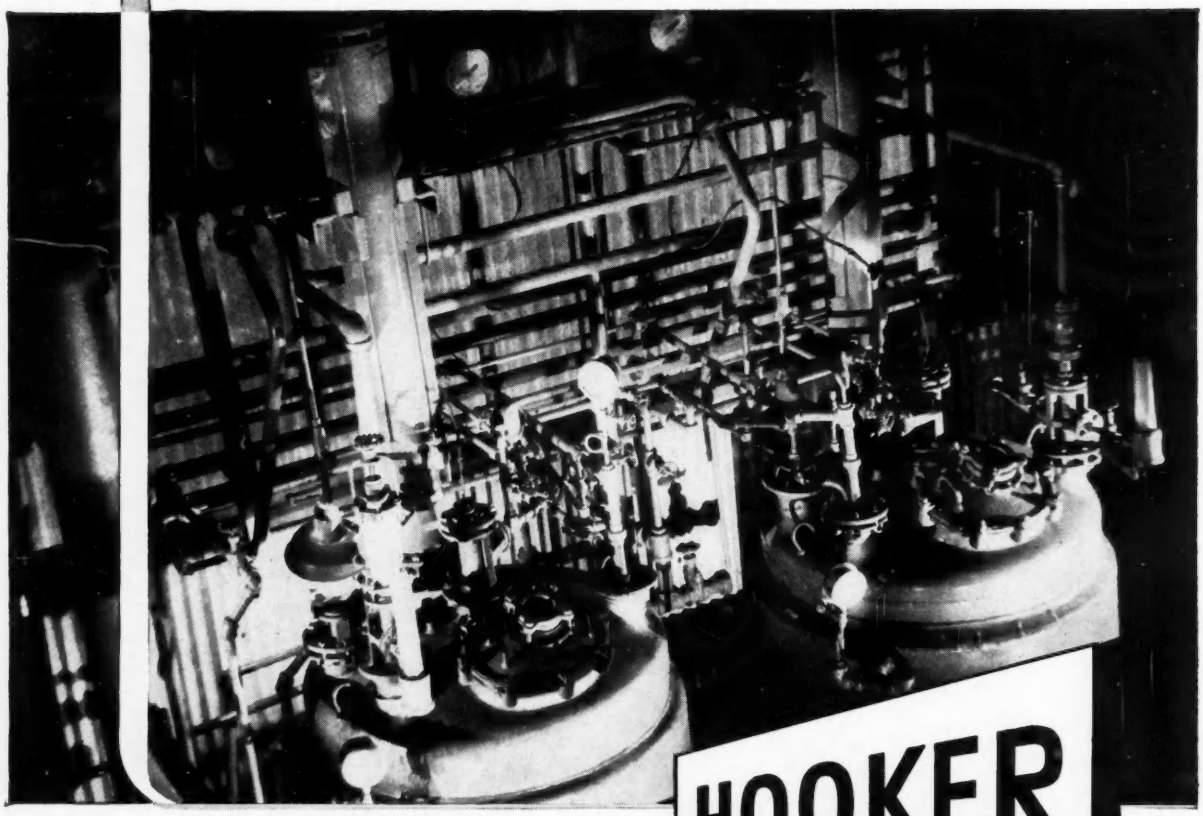
SODIUM SULFHYDRATE, NaSH, a light yellow colored solid in flake form. Soluble in water and alcohol, insoluble in ether.

Analysis

Sodium Sulfhydrate	70 to 72%
Sodium Hydroxide	0%
Sodium Sulfide	1 to 2%
Sodium Chloride	1% Max.
Other Sodium Salts	1% Max.
Iron	5ppm Max.
All other metals	1ppm Max.
Water of crystallization	28 to 26%

Shipping Containers, Drums 90 and 350 lbs. net.

"Process equipment where iron-free Hooker Sulfides are being used."



HOOKER ELECTROCHEMICAL COMPANY

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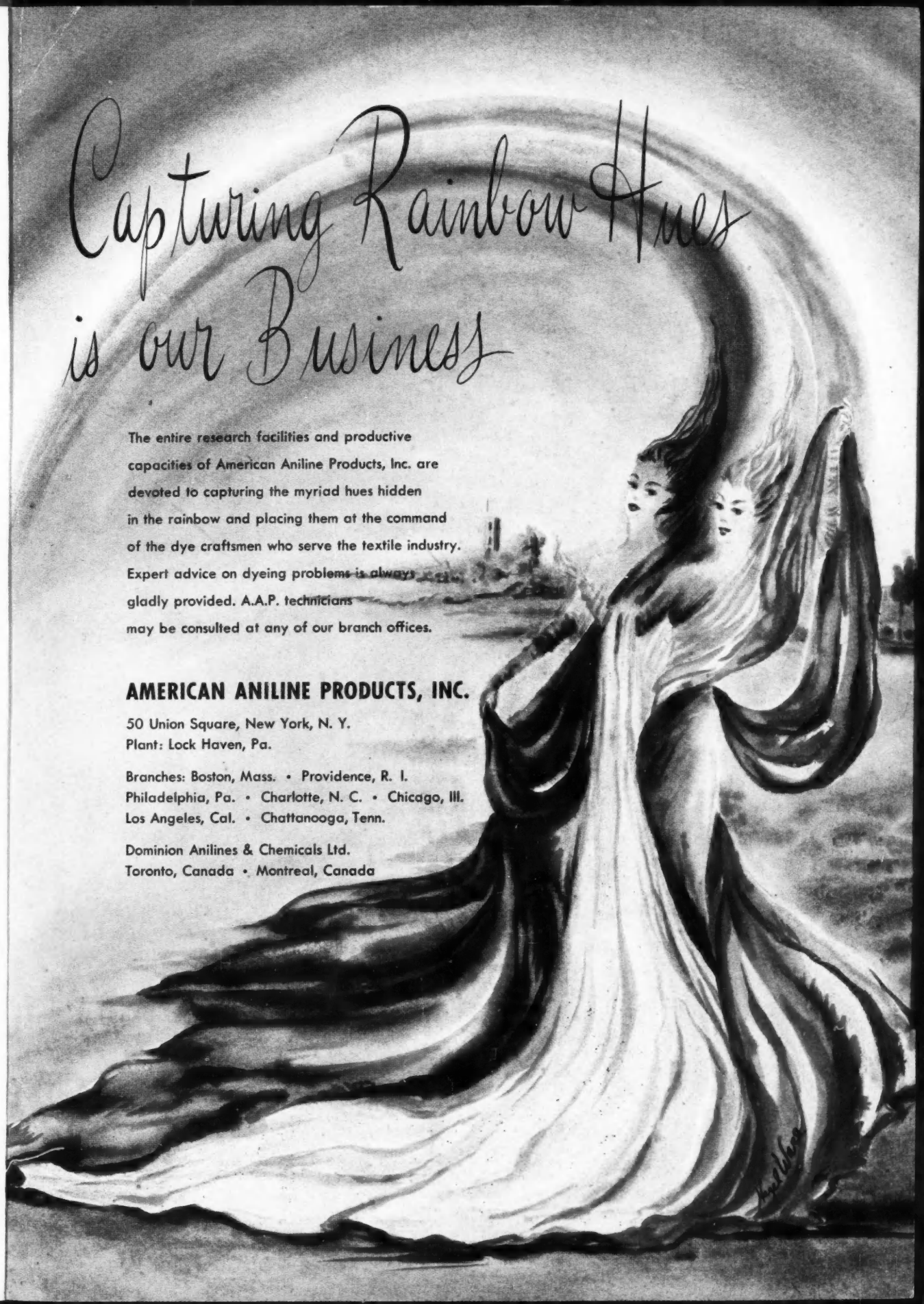
New York, N.Y. • Wilmington, Calif. • Tacoma, Wash.

HOOKER CHEMICALS

Caustic Soda **Muriatic Acid** **Sodium Sulfide**
Paradichlorbenzene **Chlorine** **Sodium Sulfhydrate** 2980


Capturing Rainbow Hues
is our Business
The entire research facilities and productive capacities of American Aniline Products, Inc. are devoted to capturing the myriad hues hidden in the rainbow and placing them at the command of the dye craftsmen who serve the textile industry. Expert advice on dyeing problems is always gladly provided. A.A.P. technicians may be consulted at any of our branch offices.
AMERICAN ANILINE PRODUCTS, INC.
50 Union Square, New York, N. Y.
Plant: Lock Haven, Pa.
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Dominion Anilines & Chemicals Ltd.
Toronto, Canada • Montreal, Canada

ONYX IONICS

Newsworthy Items for Textile Technologists and Production Men

Volume 1 | January, 1947 | Number 1

Showing Water-Repellent Action of Repel-O-Tex

Safe... One-Treatment Finish for Nylon Hose

In addition to exceptional snag-resistance, good body, well clarified stitch and adequate dulling, Eternalure D-15 offers many production advantages. It will not build up deposits on the forms. Finished hose does not stick to the forms. It is a *one-treatment* finish requiring no changes in equipment or operations.

Eternalure D-15 is proving of unusual value in giving stiffness to 15-20 denier hose to facilitate easy handling after boarding.

Dermatological tests have proved Eternalure D-15 to be non-irritating and non-sensitizing. It is completely safe for contact with human skin.

New Scouring and Dyeing Assistant

A very effective wetting agent which does not lose its surface-active properties in hard water and which provides excellent foaming action has been developed in Onyx Sorolene. This alkylated aromatic sulfonic acid derivative in powder form also has considerable detergent effect.

Onyx Ionics

"Onyx Ionics" makes its first appearance with this advertisement. It will appear in future pages of this publication, and will also be published in bulletin form, with practical production data on textile finishing.

If you want to be sure of receiving this four-page "Onyx Ionics," drop us a line asking that your name be put on the mailing list.

Easily Applied Water Repellency of Excellent Durability at Low Cost

If you are looking for an economical water repellent treatment applicable to any suitably prepared fabric without curing, washing or after-treatment, Onyx Repel-O-Tex deserves careful consideration.

Cotton, viscose, acetate, rayon and any other properly prepared fabrics are treated in the usual manner with no after handling in the mill.

Textiles treated with Repel-O-Tex D3 and D4 have a spray rating of 100 and fall well within the limits of accepted standards after the usual wash and dry cleaning tests. They are also stain and perspiration resistant.

Any desired hand or finish can be obtained at the same time by varying the proportions of Repel-O-Tex D3 and D4 used.

Durable water repellency at no greater cost than is provided by ordinary fugitive water repellent finishes is a worthwhile objective for a wide variety of fabrics readily attained with Repel-O-Tex.

A New Cationic Softener

The Onyxsans have been assuring softer finishes, better drape and lasting hand on all kinds of fabrics for many years.

Now Onyxsan LG is added to the series. This new Onyxsan is marked by the unusual durability of its softening action and a truly noteworthy resistance to washing. It provides a characteristically smooth, drapable, silky hand.

Like other Onyxsans, it is easy to use in applications in the dye beck, pad, jig or quetsch, followed by normal drying. Its action is due to effective plasticizing, thorough penetration and surface orientation of the cation-active radical of its composition. Unlike ordinary superficial surface lubrication, the Onyxsan effect is based on softness produced IN the yarn itself. Strikingly small amounts of Onyxsan LG are required.

NEW DEVELOPMENTS

For Further Data Write Onyx

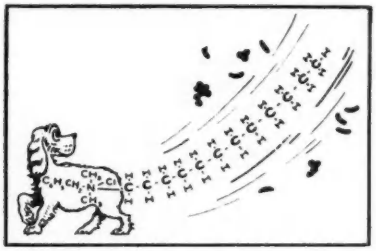
Stiffening Organdy, Ninon, Marquisette, etc., is especially effective with new Onyx Resin 362. This viscous dispersion of vinyl resin, containing 52-54% solids, requires no curing and has no solvent content. Also applicable to all types of fabrics No. 43

Stable Detergency and Foaming Action are provided by Oroset-L. This liquid, stable to hard water, also has considerable wetting power. It offers interesting possibilities in textile finishing where foaming and detergency are required. No. 44

Scroop Finish for Tubular Knit Goods is the outstanding function of Onyx-Silk-O-Ray SG. It is a water-soluble white paste with a lasting effect. No. 45

Simultaneous Scouring and Acid Dyeing of Wool is highly satisfactory when Neutronyx 330 is used. This unusual non-ionic surface-active agent has a powerful emulsifying action. It is completely stable in neutral and acid solutions. No. 46

General Purpose Resin Finish for cotton, wool, acetate and rayon is available in Onyx Xyno Resin AA-40. This vinyl resin dispersion contains 40% resin in fine particle size. Dilutions are very stable, and it can be mixed with starch, gelatine, glue, water repellents, etc. Xyno Resin AA-40 can be manipulated to give a full, mellow hand, or a good stiffness and body. No curing is necessary. No. 47



Where the Tail Wags the Dog!

Onyx Cationic Germicide is effective and dependable because manufacturing control of the long alkyl radical insures a chemical constitution of maximum killing power.

Onyx Alkyl Dimethyl Benzyl Ammonium Chloride is showing considerable promise in mildew control treatments on all types of textiles.

Onyx Technical Service

Use-formulae for any Onyx product are readily available and can usually be worked out in the mill without calling in an Onyx technical representative.

However, there are often times when the application calls for definite results, on which the experience of an Onyx man with the use of a material in many other mills will be of great value in working out a suitable use-formula.

In any event, you are free to call on the knowledge and experience of these trained textile service men, not only on problems connected with the use of Onyx products, but on any other related textile production problems on which you feel they might be of assistance.

onyx

Onyx Oil & Chemical Company

JERSEY CITY 2, N. J.

CHICAGO • PROVIDENCE • CHARLOTTE • ATLANTA • LOS ANGELES

In Canada: Onyx Oil & Chemical Co., Ltd. Montreal, Toronto, St. Johns, Que.

For Export: Onyx International Jersey City 2, N. J.

New AHCOFLEX *Softeners*

for 2 in 1 Performance

When you want an inexpensive penetrating softener for heavier, coarser cottons such as denims, ducks and coverts, specify Ahcoflex.

Ahcoflex gives 2-in-1 performance in thorough softening action, and re-wetting of fabrics which are to be Sanforized. Ahcoflex has been tested and proved in carefully selected full scale finishing processes. Now, Ahcoflex is available in quantity.

This new softener is easy to use, generally compatible with all ordinary finishing agents, and it will neither discolor fabrics nor cause them to become rancid during storage. Eliminate entirely the nuisance of two products and two operations on fabrics to be Sanforized. Use Ahcoflex for 2-in-1 economy and efficiency.

Write for test sample and further information, or send us a swatch of your coarse cottons for Ahcoflexing here.

ARNOLD, HOFFMAN & CO., INC.

MANUFACTURING CHEMISTS

ESTABLISHED 1815 • PLANTS AT DIGHTON, MASS. AND CHARLOTTE, N. C.

PROVIDENCE, RHODE ISLAND

NEW YORK BOSTON PHILADELPHIA CHARLOTTE

MORE Ethyleneamines SOON!

A large new plant unit for the production of the Ethyleneamines is now being built by Carbide and Carbon Chemicals Corporation. Early in 1947, greatly increased quantities of these important intermediates will be available. Here again is the "success story" of products developed a few short years ago taking on even more widespread applications in industry.

These extremely versatile intermediates bear further investigation especially if you are working in the fields of textile, pharmaceutical, resin, or petroleum chemicals. For the present, limited commercial quantities of any of these can be supplied for product development work.

The Ethyleneamines family include the following:

Ethylenediamine — $NH_2CH_2CH_2NH_2$
Aminoethylethanolamine — $NH_2CH_2CH_2NHCH_2CH_2OH$
Diethylenetriamine — $NH_2CH_2CH_2NHCH_2CH_2NH_2$
Triethylenetetramine — $NH_2(CH_2CH_2NH)_2CH_2CH_2NH_2$
Tetraethylenepentamine — $NH_2(CH_2CH_2NH)_3CH_2CH_2NH_2$

Information on the specific properties and uses for the Ethyleneamines is contained in the Amine booklet, F-4770A. Call or write our nearest local office for your copy.

CARBIDE AND CARBON CHEMICALS CORPORATION
Unit of Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York 17, N. Y. Offices in Principal Cities
Distributed in Canada by Carbide and Carbon Chemicals, Limited, Toronto

SYNTHETIC ORGANIC CHEMICALS

Why you can't buy all the Caustic Soda, Soda Ash, Sodium Bicarbonate and Chlorine you want... and what to expect for 1947 and 1948.

Much has been written about the need for more Caustic Soda, Soda Ash, Sodium Bicarbonate and Liquid Chlorine but, to date, little has been done to explain the reasons for the shortage of these products. In the following Question-Answer columns, Mathieson endeavors to tell American industrialists just why they can't get all they want of these vital chemicals . . . and what the 1947-1948 outlook is for alkali and chlorine production.

Q. *Why are caustic soda, soda ash, sodium bicarbonate and chlorine now in short supply when there was an ample supply before the war?*

A. Expansion of the alkali-chlorine industry during the war ***was not permitted*** (except to produce an insignificant tonnage) because of the critical shortage of materials that would have been needed for this construction. However, during the same war period, alkali-consuming industries, such as aluminum, rayon, textiles, chemicals and glass food-containers, and chlorine-consuming industries, such as DDT, synthetic detergents and plastics, were allowed to expand their production or construct new facilities. These will continue as growing peace-time consumers.

Q. *Was there less alkali for consumers in 1946 than in 1945?*

A. During 1946 there was less tonnage available than in 1945 due to interruptions in production caused by coal and other strikes. If these interruptions do not recur, there should be some increase in alkali tonnage supply for 1947, but certainly not enough to meet the increased demand.

Q. *How much alkali and chlorine are being exported?*

A. Practically no chlorine. Only a negligible fraction of the pre-war tonnage of caustic soda, soda ash and sodium bicarbonate is now being shipped out of this country.

Q. *Is there any idle capacity in the alkali and chlorine industry?*

A. Only four small government-owned caustic-chlorine plants. Two of these plants have finally been leased to private industry and will be placed in operation in early '47. This additional tonnage is only a "drop in the bucket" when measured in terms of the overall shortage.

Q. *Are alkali and chlorine producers expanding their facilities?*

A. Yes, several producers, including Mathieson, are expanding facilities for one or more products. Some of this expansion was started immediately following VJ Day. But the special heavy equipment necessary (boilers, kilns and turbines) is as high on the industry shortage list as are alkali and chlorine . . . result: expansion cannot possibly be completed until late '47 or early '48.

THE MATHIESON ALKALI WORKS (INC.)
60 East 42nd Street, New York 17, N. Y.

Mathieson
CHEMICALS

Caustic Soda • Soda Ash • Bicarbonate of Soda • Liquid Chlorine
Chlorine Dioxide • Ammonia, Anhydrous & Aqua • HTH Products
Fused Alkali Products • Synthetic Salt Cake • Dry Ice • Carbonic Gas
Sodium Chlorite Products • Sodium Methylate

S/V FABRISECS **Give Maximum Water-Repellency to These and Many Other Products**

HERE'S THE ANSWER to effective, low-cost water-repellency for a wide variety of textile products.

Easily applied with equipment in general use, S/V Fabrisecs are highly concentrated compounds designed to give maximum repellency with minimum amounts used. They penetrate rapidly and uniformly. After the cloth passes through squeeze rolls, it merely requires drying at temperatures varying between 225-300°F. No curing is necessary.

After application, these products remain unaffected by atmospheric temperatures and water. There is no objectionable odor.

S/V Fabrisecs are marketed in two grades—S/V Fabrisec AA for the one-bath method of application and S/V Fabrisec MP, for the two-bath process. See your Socony-Vacuum Representative for details.

SOCONY-VACUUM OIL CO., INC., 26 B'way, New York 4, N. Y., and Affiliates: Magnolia Petroleum Co., General Petroleum Corp.

Better Processing for All Textiles

Woolens . . . S/V Woolrex Oils improve carding and spinning. Scour out easily.

Worsteds . . . S/V Worstex Oils lubricate stock uniformly. Improve spinning.

Water Repellents . . . S/V Fabrisecs give maximum repellency with minimum amounts.

Finishing . . . S/V Finishing Oils give excellent wetting, re-wetting and softening effects.

Shrinkage Process . . . S/V Finishing Oils insure quick, uniform re-wetting.

Rayon Processing . . . S/V Rayon Oils add softness to rayon fibers.

Process Products
SOCONY VACUUM

Socony-Vacuum Process Products

TUNE IN THE MOBILGAS PROGRAM — MONDAY EVENINGS, 9:30 E.S.T. — NBC

EASTMAN FAST YELLOW GLF

A Dyestuff for Cellulose Acetate Rayon

EASTMAN FAST YELLOW GLF, one of a line of dyestuffs with exceptional fastness to sunlight, produces bright shades of neutral yellow on acetate rayon. Dyed in pastel shades on delustered acetate rayon, twenty-five to forty hour light fastness results; in heavy shades, light fastness approaches two hundred forty hours.

Eastman Fast Yellow GLF exhausts rapidly and levels exceptionally well over a temperature range of 160° to 190° F, and it may be used on either jig or box. Since it leaves cotton and viscose white, it is suitable for cross-dyeing. Eastman Fast Yellow GLF has very good fastness to sublimation, and is recommended for use in application printing.

Eastman Acetate Dyestuffs are available in a wide variety of useful colors for the dyeing of cellulose acetate rayon. Additional information on these dyes and their application to fibers and fabrics may be obtained from TENNESSEE EASTMAN CORPORATION (Subsidiary of Eastman Kodak Company), KINGSPORT, TENNESSEE.

Eastman

ACETATE DYESTUFFS

Take your choice:

FOR SCOURING AND DYEING RAYON KNIT GOODS

Some rayon processors prefer soaps for scouring and dyeing knit goods. With others the choice is synthetic detergents. Whatever your own preference may be, you can count on excellent performance with either Olate or Orvus. If you have never used these time-tested products, a comparison of their special characteristics may be helpful in determining which will best suit your needs.

PROCTER & GAMBLE

*Orvus is available in paste or granule form. Discuss your Orvus needs with your Procter & Gamble salesman.

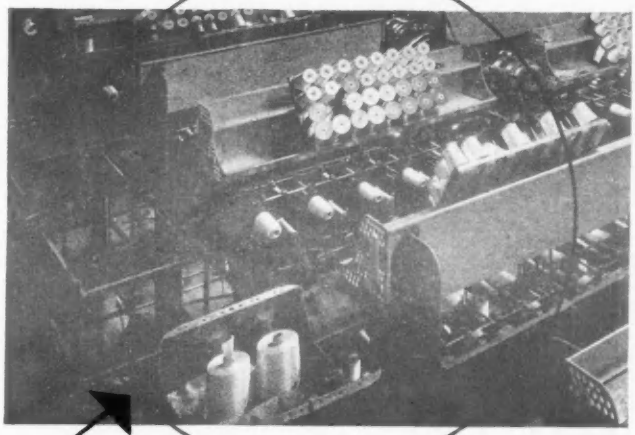
Olate — *A pure, neutral soap of exceptionally low titer and gentle cleansing action.*

- *Fast dissolving.*
- *Excellent cleansing, lubricating, and wetting out properties.*
- *Free rinsing.*
- *Provides unusual safeguards against uneven shrinkage, streaks, dye blotches and chafe marks.*
- *Resistant to oxidation, rancidity and odor development.*

ORVUS* — *A time-tested, uniform, neutral, safe synthetic detergent.*

- *Ready solubility.*
- *Orvus scouring assures even dyeing and uniform bleaching.*
- *Rinses thoroughly and quickly.*
- *No danger of streaks, specks and spots from hard water soap deposits.*
- *Orvus-processed rayon fabrics are clean, have a desirable odor, and a full hand.*

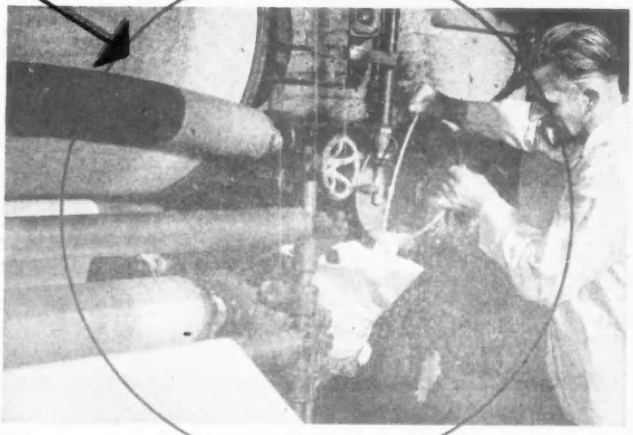
where will you "build" your new fabrics...



in the weaving shed...

or

in the finishing plant?



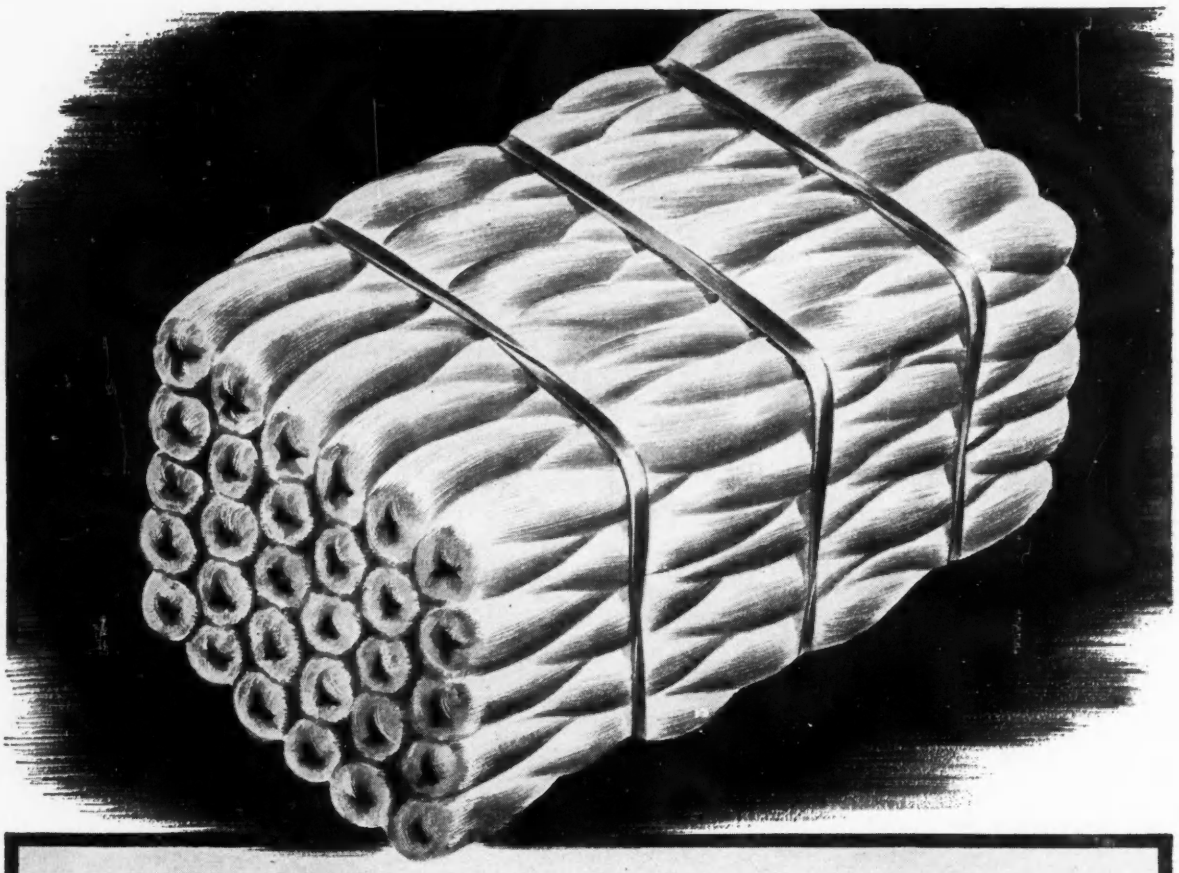
The traditional spot for creation of new fabrics is in the weaving process.

Today chemistry has modified that. Progressive producers of fine textiles are developing exciting new fabrics in the *finishing* operation . . . utilizing Resloom, Monsanto's unique textile chemical—Resloom builds new properties into the old constructions.

Resloom delivers the resilience of wool to rayon fabrics or new stability to both cotton and wool. (For example, Resloomed rayons are lower in cost than rayon and wool blends—are more washable, more stable). And the headaches of mixed fiber dyeing and finishing are avoided.

If you are interested in the immense potentialities of *new fabrics* produced with Resloom... get in touch with Monsanto's textile technicians and hear the full Resloom story. Write, wire or phone: MONSANTO CHEMICAL COMPANY, 140 Federal Street, Boston 10, Massachusetts. Resloom: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS AND PLASTICS
the fabric
SERVING INDUSTRY... WHICH SERVES MANKIND



BACK ON THE "BOOKS"!

The leading pre-war silk soaking oil for Hosiery Tram

NOPCO* DIRECT No. 1 (1854-X)

The matchless ability of Nopco Direct No. 1 (1854-X) again provides the best of lubrication for tram, as well as the clear, regular stitch that identifies hosiery of top quality. That's why it was the largest selling pre-war silk soaking oil for hosiery tram. That's why it *is* the favorite soaking oil of leading Throwsters and Knitters.

How Nopco Direct No. 1 (1854-X) Helps Improve Hosiery Tram

MAXIMUM LUBRICATION. Nopco Direct No. 1 contains an exclusive additive, which insures complete lubricity for every filament.

CONTROLLED SOLUBILITY. Nopco Direct No. 1 permeates the sericin or gum thoroughly and softens it uniformly. Result—yarn exceptionally well conditioned for more effective throwing, coning and knitting.

GREATER YARN PLIANCY. The thorough external and internal gum-softening action of Nopco Direct No. 1 leads to the following product benefits . . . better loop formation in knitting, insuring a clear, even stitch. Yarn of this type produces a stocking with less roll on the machine—and in the final phase, easier looping and seaming.

NOPCO **EVOLVED THROUGH RESEARCH**

*Reg. U. S. Pat. Off.

GREATER ECONOMY. Nopco Direct No. 1—combined with recommended alkalies—is almost 100% exhausted from the soaking bath and into the soaked yarn.

To get a more complete picture of how Nopco Direct No. 1 (1854-X) can help bring peak quality to your silk yarn, write for interesting, informative booklet.

NATIONAL OIL PRODUCTS COMPANY, Harrison, N.J.

Branches: Boston • Chicago • Cedartown, Ga. • Richmond, Calif.

NOPCO DIRECT No. 1
SILK SOAKING OIL

DO YOUR LEVELING BEST WITH

Sulframin N

The ideal leveling agent for wool processors

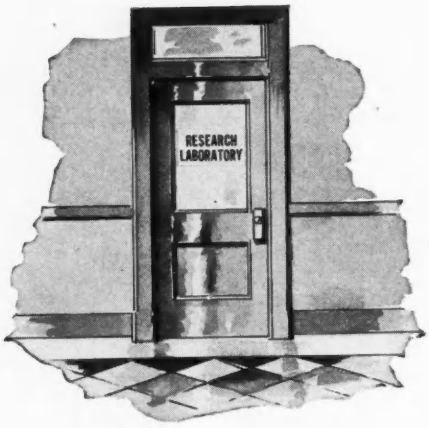
Here is a foamless wetting agent, synthesized expressly for wool processors. As a wetting out agent, Sulframin N always performs superbly...in package dyeing as well as in carbonizing. Especially important, wherever water conditions present problems, Sulframin N is completely immune to the chemical attacks of inorganic acids, alkalis, lime and magnesium salts. Investigate the advantages Sulframin N offers to your production today! We'll be glad to forward details upon request.

ULTRA Chemical WORKS

ULTRA CHEMICAL WORKS, INC.

PATERSON, NEW JERSEY • CHICAGO, ILLINOIS

IN CANADA...Delta Chem. Co., Brantford, Ont. IN MEXICO...Icon, S. A., Mexico, D. F.



MEET OUR STAR SALESMAN

We invite you to become acquainted with our star salesman . . . the Hardesty Research Laboratory.

The trend to Hardesty fatty acids and their derivatives started when Hardesty technical service began demonstrating to manufacturers how they could save money by first consulting Hardesty on a new problem. The trend to Hardesty continues because of the acknowledgment that Hardesty is a dependable source of supply for stearic acid, red oil, glycerine, fatty acids and their derivatives. Manufacturers have learned to rely upon Hardesty for quality in every product and uniformity in every shipment.

Hardesty products are made in various grades to meet the requirements of the chemical, cosmetic, soap, rubber and other industries. At present it is difficult to render the traditional Hardesty prompt service but if you have a problem, present it to our Research Laboratory, and let its knowledge and experience go to work for you. W. C. HARDESTY COMPANY, 41 East 42nd Street, New York 17, N. Y. Factories: Dover, Ohio; Los Angeles, Calif.; Toronto, Canada.

HARDESTY PRODUCTS: STEARIC ACID • RED OIL • GLYCERINE • STEARINE PITCH • WHITE OLEINE • HYDROGENATED FATTY ACIDS • ANIMAL AND VEGETABLE DISTILLED FATTY ACIDS.

W·C·
HARDESTY
COMPANY

Toys as well as textiles?

Yes, National Aniline is the principal producer of non-toxic Certified Colors for toys . . . colors that are completely harmless if youngsters, as youngsters will, use their toys for teething rings.

National Aniline pioneered this contribution to child health just as it took leadership in color developments for plastics, soap, leather, paper, foods, drugs, cosmetics, biological stains and in every other field where aniline dyes are used.

Our unequalled composite experience, available through National Technical Service, can be helpful in solving your next difficult dyeing problem.

National Aniline

DIVISION OF

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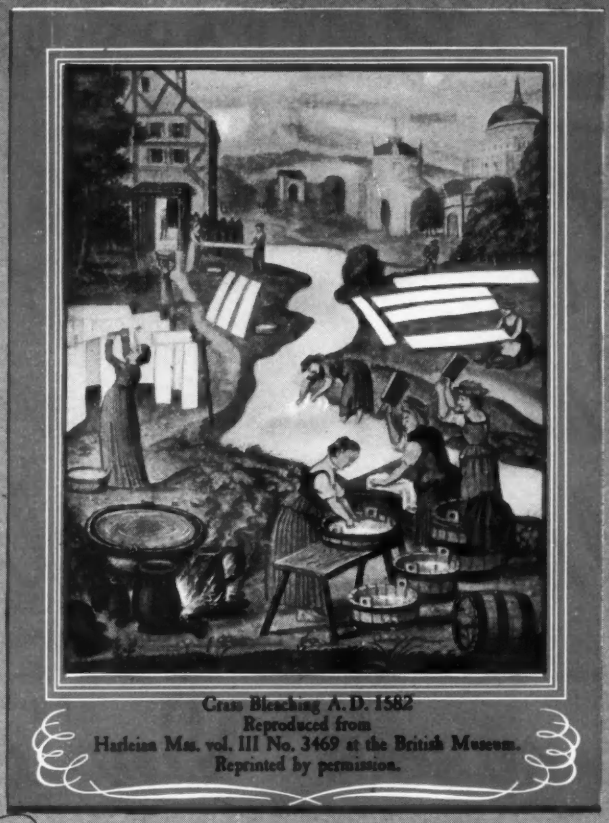

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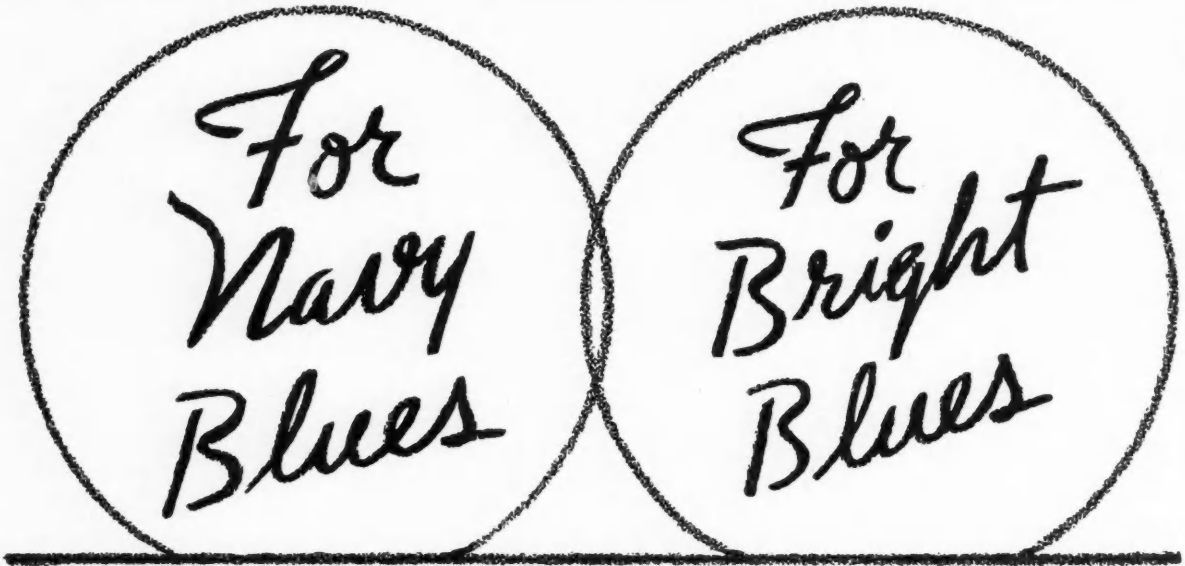

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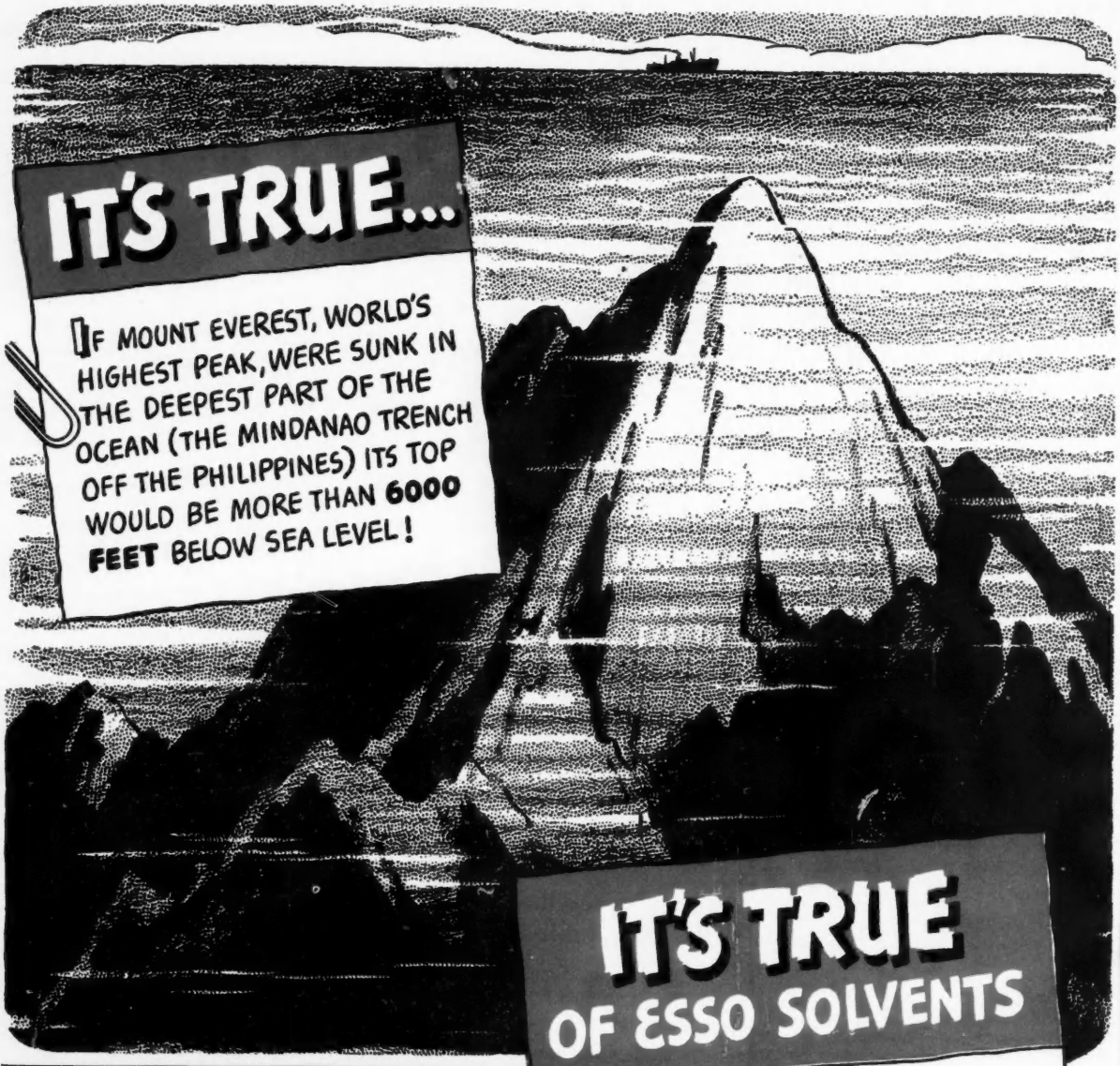
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Problems Connected with Dyeing and Finishing Synthetic Fabrics*

WELDON HELMUS

Fairlawn Finishing Co.

TO start my subject this evening, I would like to give a background of our industry to acquaint some of our guests with the fundamental necessities for a well balanced dye plant. Without these services it would be impossible to operate an efficient plant for the production of quality work.

Services Needed

There are not many industries that use as many and as varied services as are used by the average dyer. Before starting up a modern dye plant, one must be certain of an adequate supply of low cost water, with the proper degree of softness; steam in high, medium, and low pressure; AC and DC current; along with gas, compressed air, and sewerage facilities of adequate capacity.

It is impossible to over-emphasize the important part that water plays in dyeing processes. The average small dye house, producing one million yards a month, will use roughly fifteen million gallons of water per month, or enough water for a community of ten thousand inhabitants. To produce the best quality of work, a dyer should have such an abundance of cheap water available at all times that he can well afford to use excessive amounts in all of his wet processing. The condition of the water must be closely controlled from a standpoint of hardness, total impurities, and pH.

The same plant would use, in a month, roughly three hundred thousand cubic feet of gas, one hundred thousand kilowatt hours of electricity, and ten million pounds of steam.

One item which is generally overlooked by the average person is the problem of disposing of fifteen million gallons a month of dye house waste, which contains various dyes, soaps, chemicals, and finishes. At first one would say run it into a river, which is exactly what was done some years ago, and is still being done in certain localities, but upon investigation you will find that the sewerage of an industrial plant might be the drinking water for either persons or animals some distance down the same river or stream. I, personally, made an extensive survey of possible plant sites in 1938 and 1939, and it was surprising to find how few locations had adequate facilities for the disposal of not only dye house waste, but of any type of sewerage. Otuside of the facilities offered by a very few municipally operated trunk sewers which emptied into the ocean, the next best proposition offered was to get a plant site close enough to the ocean, a river, or a stream which had brackish or tide water.

Preparation

When the dyer receives greige goods, the first operation is examining the raw material. Until recently it was the habit of the greige goods mill to ship the woven material to the dyer without any indication as to the construction or sizing materials used in the weaving. It has been found that slight changes in construction, or changes in the size or oil used in the yarn, would have a tremendous bearing on the type and amount of shrinkage obtainable.

There are various methods available to the dyer whereby he can control, to a considerable degree, the set or shrinkage in a fabric. For example, in certain cloths it is quite possible for a dyer to retard or increase the time in shrinking so that there is a considerable difference in the appearance of the finished product. If a manufacturer has sampled a quality with a dyer, and if he continually sends the same quality, using the same picks, the same ends, the same yarn from the same manufacturer of that yarn, and uses the same sizing formulas, a dyer can usually give reasonably uniform results. However, in the case of certain yarns, and I particularly refer to nylon, during the war it was found that the temperature and humidity of the weaving plant has considerable bearing on the finished width of this fabric. There are so many variables in woven piece goods, from the raw material that goes into the making of the yarn, through the twisting, sizing, and weaving, that should be controlled as diligently as possible so that the dyer will at least start with a uniform product. In many cases the dyer has been blamed for not being able to reproduce a certain effect in the finished fabric, but upon tracing back, many of these apparent defects have been caused by slight variables in the procedure, both in yarn construction or mixtures of different companies' yarns. This is explainable under today's conditions, and the dyer should not be held responsible.

Another serious problem for the dyer is greige goods that have been badly creased, previous to their shipment to the dyer. In most cases these creases can be taken out by the dyer, particularly if the greige goods were not stored for too long a period. The treatment used, however, does not always work to the full advantage of the cloth. A good example of the effect of these creases is in the production of acetate and viscose crepes. These creases, if handled without embossing, produce very serious break marks in the finished fabric. In this case, the embossing solves two problems: first, it eliminates the break marks; second, it gives a uniform crepe or pebble to the face of the material.

I would like to spend a minute in discussing the cleanliness of greige goods. This has always been a problem for the dyer. He has to continually change formulas and methods in order to combat the different types of dirt normally found in material. Weavers tell us that it is impossible to weave a piece of goods without a certain amount of dirt, either from the loom or from the helpers' hands. Accumulated grease or graphite which has been woven into the fabric accounts for the largest percentage of dirty greige goods. I would like to take this opportunity to compliment the average weaver for a year-by-year improvement in the cleanliness of fabrics which I have had the opportunity of inspecting over the last twenty years. On my recent trip made to our parent plants in both Scotland and Switzerland, it was my personal feeling that the material received by the average American dyer was much cleaner than that

* Presented at meeting, New York Section, October 18, 1946.

seen in Europe. It is still common practice to use linseed oil in sizing material produced in those countries, and we, as dyers, can be very thankful that the American woven goods are treated with water-soluble sizes and oils. It is quite a difficult job for a dyer to scour materials which have been previously sized with linseed oil, particularly if the goods were in storage for a long time. It was also noted that in Scotland practically all of the cellulose acetate yarn used had to be delustered with phenol; this application, fortunately, is not used extensively in this country.

Other problems of lesser importance which the average dyer has to cope with are poor selvage construction, tight selvages, tight ends, trammage, and foreign matter which has been woven into the fabric.

In defense of the yarn manufacturer and the weaver, who, incidentally, have plenty of their own production problems, I would like to say that the war has brought about a better understanding and appreciation of the dyers' problems, so that recently the dyer is consulted, questioned, and advised of changes made or anticipated in the fabric. Although the weaver gives the dyer information as to fiber content, it is always advisable for the dyer to identify the material himself. While checking into the identification of the fiber it is always well to check if there is starch in the sizing; if so, this requires a special treatment with enzyme preceding the regular scouring operation.

Boil-Off

It has often been said that one can "make or break" a quality in the boiling-off operation, and it is my feeling that this is substantially correct. In most of the acetate and viscose constructions it is important to obtain maximum shrinkage in the scouring operation, and, if necessary, to take out shrinkage in the finishing operation. It is impractical, if not impossible, to reverse this procedure, as once the shrinkage is lost in scouring one can never quite make up the maximum shrinkage which was originally available. Various wet processes control to a large degree the shrinkage and the crepe effect on the finished fabric. When confronted with a new quality, it is advisable to take small samples and process them by several of the usual methods to determine which method should be selected for the lot itself. If a definite conclusion is not made on the trial samples, it is better to try a single piece in actual practice before proceeding with the balance of the lot.

There are several methods of scouring available to the dyer. These are: open box or skein method, continuous boil-off machine, and jig scouring. In the case of certain viscose crepes it is advisable to swell the fiber with a pretreatment of caustic. The average dyer uses either soap, synthetic detergents, or mild alkali in the scouring of synthetic fabrics. After numerous trials we have found soap to have the best properties of detergency, providing it is used with soft water. Synthetic detergents have a definite place in the scouring and dyeing operations; however, it is my belief that these products have encouraged dyers to use untreated water. The seasonal variations that accompany the use of this type of water supply are not conducive to quality workmanship. It is our belief that a low titer soap, used with a small quantity of synthetic detergent and kept at the proper pH with mild alkalies, is the best scouring and setting bath that can be used on all types of synthetic fabrics. When using soap it is very important to have a very good rinse to prevent drying which might give local concentration of residual chemicals. If these chemicals were allowed to concentrate through drying, it would cause local deterioration of that part of the fabric.

Quite often a dyer is confronted with fabrics which have been woven very tightly or fabrics containing hard, twisted yarns. In a case of this sort it must be remembered that the minute these fabrics are entered into a liquid solution, the yarn swells, making it that much more difficult to penetrate with the scouring solution; therefore, it is necessary to obtain an extremely good wetting out agent. Many of these products are available to the dyer.

Dyeing

In the dyeing of synthetic fabrics the first problem is to determine the method to use in producing the best results for the particular quality involved. The machinery that is generally used is either the dye beck, which is known as dyeing in rope form, or the dye jig, which is a full width operation. There are other machines for the dyeing of continuous piece goods, such as the dye pad, the Williams Machine, and the pad steam continuous machine. All of these machines have their place in certain applications, the latter particularly where large volumes of materials are to be dyed in the same shade.

Of all the machines mentioned, the dye beck, or sometimes called dye reel, is one of the best machines to use to retain maximum shrinkage in the fabric. This machine is best fitted for this type of work, because it normally exerts the least amount of tension on the fabric. It should be mentioned here that practically all of the synthetic fabrics lose shrinkage when they are subjected to excessive tensions, particularly at elevated temperatures such as those encountered in a dye bath.

The dye jigg is best suited for the flat fabrics, such as taffetas, oxfords, and satins, but even these qualities can be damaged by unevenly applied tension or excessive tension which would tend to make the quality extremely thin and to produce a very unsatisfactory finished fabric.

In the newer developments of dyeing with the continuous vat machines, there are certain problems connected with these machines which take a considerable amount of time and experimentation, on the part of the dyer, before the best results are obtained. In the case of the Williams' Unit, the goods are normally pigment padded, followed by reduction at high temperatures on the unit. The reducing liquid and cloth pass through a closely confined space heated automatically by baffles. It is necessary to add pad liquor to the reduction unit in order to attain equilibrium of the liquor and thus correct for shading at the start of the run. In the pad steam method, reduction is accomplished in a steam medium. The vat pigmented material is impregnated with the reducing solution on a second padder, followed by a short steaming. Applying vats by this method creates certain limitations to combination fabrics containing acetate or wool, due to the use of caustic at the higher temperatures of ageing. The vat acid method, which is rather new, has produced some very interesting results. The more rapid conversion of the vat acid to the sodium leuco, as compared to the corresponding vat pigment, speeds up the rate of dyeing and permits a reduction of temperature and alkalinity which minimizes damage to the protein fiber.

In the bleaching of synthetic fabrics it will be noted that the choice of material will have to be made from the usual oxidizing agents normally used, such as hydrogen peroxide, sodium perborate, sodium hypochlorite, potassium permanganate, or sodium chlorite; and the one selected should not be applied until the material has been given the best possible scour. After dyeing, it is usually the practice to tint to obtain the shade desired.

Before dyeing any of the synthetic fibers, a tremendous amount of laboratory work must be produced, both by the dyestuff manufacturers and the dye house involved in the use of their products. In order to get level dyeing it is first necessary to get dyestuffs that are compatible.

They should have similar rates of exhaust, good solubility, good leveling power, preferably colors that do not exhaust too rapidly, and those that attain maximum exhaustion at approximately the same temperature. Colors that exhaust too rapidly usually produce uneven results, not because the color will not level, but rather because the material has attained its proper shade, and the dyer, therefore, stops the dyeing operation prematurely.

There are many variations in yarn which cause no end of trouble to the average dyer, particularly when the weaver is not conscious of the variations of dye affinity of the yarns with which he is working. In the case of viscose being produced by three or four different manufacturing companies, it is known that a controlled dye bath will produce considerable variations of shade from one manufacturer's yarn to another.

In the case of acetate yarns, it has been found that certain manufacturers' yarn will dye more rapidly, and give better money value, than others. It has also been noticed that in these same acetate yarns some brands resist saponification to a greater extent than others, and this resistance to alkali is, in general, inversely proportioned to the rate of dye absorption.

In the case of nylon, it will be noted that certain acetate colors dye nylon in an entirely different cast than they would produce normally on acetate. Due to certain factors the leveling of nylon is not as good as that produced in other of the synthetic fabrics. The warpiness seen in all nylon dyed fabrics shows up, whether they be dyed with acetate, acid, premetalized chrome, or chrome colors, although the acetate colors level better than the others.

Aralac, as manufactured today, is received in an acid condition, therefore, it is most important that the pH be controlled carefully in dyeing to obtain the levelness expected. In a mixed fabric containing aralac, viscose, and acetate, if no attempt were made by the dyer to neutralize the aralac, all of the color would immediately draw a very heavy shade on that yarn, meaning aralac, and very little on the viscose. However, if the aralac were dyed in a strong alkali condition, most of the color would go on to the viscose, having the aralac with little or no color, and at the same time ruining the protein fiber.

From these remarks it can be seen that in order to reproduce results, the weaver must send the same fabric as his original construction. The shortage and continuity of yarn supply have made this one of the most difficult problems for the average dyer today. It is impossible for any dyer to dye with a formula if he has one manufacturer's yarn today and a different one the next day.

There is a great deal of misunderstanding and confusion about fastness qualifications in a line of colors produced by the dyer. This, I believe, is due primarily to the fact that there is so little understanding of the problems connected with dyeing a range of colors. Certain colors, for example, are very fast to light when dyed in concentrations of one per cent or higher. The same colors, dyed in lower percentages, may be poor when exposed to light. This same color could be extremely fast to perspiration when used in percentages of one percent, and quite poor to perspiration fastness when dyed in concentrations over one per cent. One per cent is merely used for this example and should not be taken as the point of change in fastness of colors.

When producing fast dye work on combination fabrics most people request fastness to a combination of items such as light, washing and perspiration. This tends to complicate the problem still further, because a dye that might be extremely good to washing could be poor to one of the other requirements. It is also possible that the dyer will find a color which would dye the viscose, in an acetate and viscose combination, to meet all the requirements, but may find that this color would not be compatible with the color to be used in dyeing the acetate, therefore it is quite often necessary to compromise in the selection of the best colors in dyeing a good shade.

There are requests to give fastness that is not required in the end use of the fabric. For example, most plied yarn fabrics are usually dry or wet cleaned and are never subjected to the home or commercial laundry, therefore, it would not be necessary to have this material dyed so that it would withstand high temperature scouring operations. It would be to the interest of the ultimate consumer if the fastness requirements were listed in their order of importance, and the dyer, in that case, would give the best fastness to the first item and lesser fastness to each subsequent requirement.

There has been a great deal of interest lately in the dyeing of colors on acetate which would be extremely resistant to gas fading. In the past it has been recognized that certain colors, when applied on acetate, do fade when subjected to gas fumes, and that the same colors used on nylon do not fade at all. Therefore, it has been the practice to use certain chemicals to inhibit the material against this type of fading. Some of these older materials did an extremely good job, as far as improving the gas fading fastness goes; but in some instances they reduced the light fastness of the dyes used. Some of the newer types have the added advantage of protecting the material after repeated washings or dry cleanings. It is my belief that the most recently developed inhibitors are a step forward, but in view of certain discolorations produced by the inhibitor itself in the gas chamber, it is obvious that the ultimate has not been reached and that improvement is still desirable.

At this point I would like to mention the work now being done by various committees of our Association on the effect of detergency, gas, washing, and light on all fabrics and combinations thereof, and particularly upon the stress being made by each of these committees on the interpretation of what an appreciable change is when evaluating test results. There has been so much confusion in the evaluation of test results because of the lack of information or testing equipment to determine what constitutes a perceptible change.

Some of the best colors known will fade slightly in exposure to the Fade-Ometer, or gas chamber, or a treatment in the Launder-Ometer; but subsequent treatments or extended treatments in the same equipment will have very little effect after the original fade has been produced. It is the opinion of many I have talked with on this subject that a slight fade, providing the cloth stays in cast, should be acceptable. However, if the cloth is an entirely different color, there would be no question as to its failure to meet requirements.

Finishing

The machinery used in finishing operations is substantially the same as was used before the war, however, there are certain improvements which have been extremely helpful to the dyer. Because of the changes in requirements for finished piece goods, the drying equipment has become vitally important, and, therefore, efficiency has been increased tremendously through the addition of new heat exchangers and improved blowing apparatus. The new tenter frame housings have proved very satisfactory, and this equipment is being sold today with a guarantee of 1500 to 1800 pounds of water evaporated per hour on an eighty-foot housing, with 100 pounds steam pressure.

Previous to the introduction of continuous dyeing equipment and the application of resinous finishes, a piece was dried once, or possibly twice, from the

beginning to the end of the dyeing and finishing operations. Today, pieces are dried as many as five to six times, depending on the requirements.

The war has brought about a consciousness of specifications to meet different requirements in regard to the end use of the fabric involved. This has made it necessary for the finisher to become well acquainted with materials to produce anti-crease finishes, water repellant finishes—both durable and semi-durable, anti-slip and anti-crock finishes, abrasion resistant materials, and anti-fume inhibitors. There are times when one or more of these materials may be placed in one bath for application, however, in most cases a separate application of each material produces better and more lasting effects.

With the addition of these new finishing agents it has become necessary to determine percentage pick-up, within a reasonable degree of accuracy, in order to reproduce results from day to day. Since this has become more important, the pneumatic and hydraulic equipment, furnished on padding or quetch equipment, have given the finisher a tool that will produce results much more uniform than with the older system of weights and counter balances.

Resin treatment has been used more extensively in the past few years and with it have come many problems affecting both the color and touch of the finished fabric. The urea formaldehyde type of resins, in general, are harmful to the light fastness of many colors. Therefore, the selection of color for material that is to be after-treated with this type of resin is extremely important. There are many fabrics given a resin treatment today which, in my opinion, should not have this finish; and there are many people who do not realize that when applying urea formaldehyde resins to acetate and viscose combinations, the resin has no effect on the acetate part of the combination. When a piece of material is given resin to improve its resilience, I believe that the resin content on the viscose should only be enough to give the resilience required, and it should not be necessary to load up a fiber with material merely for the sake of obtaining a given resin content. The dyer is requested to give resin treatment with a certain percent of resin retention, and many times it has been found that the material involved will almost meet the resilience requirements before the application of the crease-resistant finish. We have found that, in general, the English textile industry has built the fabric and applied the resin finish to obtain the best results, regardless of quantity of resin fixed in the fabric, and accepting the width of fabric which best met the requirements and length or width shrinkage. In many cases the dyer is the best judge of the finished width of a fabric, as he is the only one who knows the width of the cloth previous to the finishing operation.

There has been a great deal of interest lately in controlled shrinkage of synthetic fabrics. Two processes have been developed which are giving interesting results. These are the Sanforset and the Definized processes. In both of these processes it should be noted that the width is determined by the dyer in order to meet the residual shrinkage requirements of the customer. We have heard of requests to finish a fabric 42 to 45 inches wide which was 28 to 29 inches before finish, and the customer seemed quite surprised that the fabric could not be stabilized to his required finished width. Fortunately, the more progressive weavers have a thorough understanding of this problem and will weave their goods accordingly.

Temperature control in finishing has become extremely important for many of the new applications, and, fortunately, the manufacturers of temperature-controlling equipment have done an excellent job along these lines. Today curing units running to temperatures above 425°F. can be controlled at any given degree plus or minus 2°. Controlled temperature is extremely important for curing resins, drying acetates, and setting nylons. In the case of acetates it has been found that high temperatures produce a very stiff, boardy fabric. In setting nylons you must be careful to regulate the time and temperature so that the yarn itself does not become yellow.

The continuous boil-off machine has become very useful in washing out resin-treated material, not only from the standpoint of removing free chemicals but also from the standpoint of reshrinking and reconditioning the fabric.

Glass

Glass is one of the newer synthetic materials and it has become important in the drapery field because of its fire-resistant qualities. The dyeing and finishing of this fabric is being handled as a separate subject, because it is so entirely different from anything handled previously by the average dyer. The dimensional stability is such that ordinary dyeing and finishing equipment has to be adjusted to handle this fabric satisfactorily. At present, most of the glass being dyed is scoured and subsequently dyed with a finely dispersed pigment in a resin binder. This, of course, furnishes a surface dyeing on the glass filament. In many of the darker shades it is necessary to apply a finish over the resinous dyed material in order to minimize the crocking apparent with this treatment. At present new binders and sizing materials are being applied to glass fibers in order to improve dyeing procedures. This work is still in the experimental stages and may improve the color index or dye affinity of the material. It is also hoped that these new materials will materially aid abrasion resistance.

There have been a great many improvements in dyeing and finishing techniques, and we are looking forward to many more. Development work on war fabrics has made the entire textile industry conscious of requirements in the end use of fabrics. This consciousness has allowed a great degree of cooperation between yarn manufacturer, weaver, dyer, and converter; and it is believed that this inter-change of information will give the ultimate consumer fabrics for the future that have far better wearing and styling characteristics than were available in the past. The dyeing and finishing industry will certainly do their part in raising standards to the highest possible plane with the materials available.

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Attendance Figures at Silver Jubilee Convention

THE following are the official attendance figures for various events at the Silver Jubilee Convention held in Boston at the Hotel Statler on December 12-14th:

Total Registration	1519
Men:	
Members	1170
Guests	266
Ladies:	
Members	24
Guests	59
Attendance at Dinner Thursday evening, honoring Charter and Corporate Members	335
Attendance at Luncheon Friday, for National and Sectional Officers	46
Attendance at Luncheon Saturday, for Textile School Alumni	254
Attendance at Annual Banquet Saturday evening	910

The Printing of Mixed Fabrics*

GEORGE A. NORTHUP
Assistant Superintendent, Waldrich Company

THE printing of mixed fabrics did not become a problem to the textile printer until the introduction of the various types of acetate and rayon yarns. Prior to this time the printing in the Paterson district was done on straight fiber cloths, principally on silk. Therefore, it was very easy for the silk printer to print mixtures of silk and wool, since the same colors were used on these fabrics as had been used on silk prints. One cloth printed in large volume during this period was a silk and wool faille. This material was reel dyed in dark solid shades and printed in high pigment whites and basic color discharges. The fabric was dried very lightly during printing by running with the back grey over the top of the grey cans and plaited down on small flat trucks. As soon as two or three pieces had been printed, they were taken to the ager and aged immediately to avoid "heating up," which occurs when printed goods are damp. Goods not properly dried start up an accelerated action in the hydrosulfite contained in the printed sections and this reaction destroys the discharge effect of the color present. After ageing, these goods were washed in single strands on the dye reel and subsequently taken out in bundles of one or two pieces, whizzed, and dried on the dry box. Another style of this silk and wool was dyed in pastel colors and printed with a white discharge, some bright reds or greens, and a covered blotch effect. The colors in this case were the regular silk application colors. There was so little hydrosulfite in the white color (2-4 oz. per gallon) that it had no effect on the colors running behind it on the printing machine, nor did the white mark off on the blotch color during the ageing and steaming process. These goods did not require padding, since the colored ground did not fade or tarnish as do rayon grounds with vat color prints.

Rayon Goods

With the introduction of rayon crepe and rayon and silk piece goods, about 1930, the silk goods printer was forced to adopt a new line of colors (the vat colors) and to buy longer and more powerful agers for their development. The regular silk ager at this time, even with the water well, would age up only about 25 per cent of the strength of the vat print colors. On these rayon fabrics the method of washing had to be altered to suit the new colors, with provision made for developing the prints. On single reel washing, the different oxidizing and soaping processes require draining and refilling the box and heating it up to a given temperature. For this reason, various types of continuous washers were developed. Usually, vat print colors are oxidized with sodium perborate in the open width on a series of wash boxes, then are dropped into a tower or J-Box, from which they pass thru a multiple reel washer, where they are soaped and rinsed, and run over the sucker. The new synthetic detergents are used in the soaping process and they work out very well. When silk finally disappeared from the market due to the China-Jap War, the rayon printing industry was firmly established in its place. Then began the introduction of new fabrics and mixed fiber constructions.

Celerandum

One of the early mixtures was called celerandum. It consisted of an acetate and rayon warp with a rayon filling. Most of this cloth was printed on white ground with direct colors which had little or no staining effect on the acetate threads. The colors were printed with gum tragacanth with a little phosphate of soda. After printing, the goods were steamed 45 min. in the cottage steamer. The washing of the goods was carried out on the flat washer, which is a series of several wash boxes equipped with water sprays and rubber squeeze rollers between each section. The goods were washed three times on this machine, increasing the temperature with each subsequent washing and leaving the acetate fiber unstained. The first wash was with cold water, the second with warm water, and the third was with soap at 140 degrees fahrenheit. Some very novel effects were obtained by this process. This quality was also cross dyed in two-tone color effects and printed with vat color patterns.

Spun Blend Cloth

The most important cloth produced with mixed yarns is probably the spun rayon, spun acetate blend cloth, dyed acetate white. This cloth runs from 25 to 60 per cent spun acetate, both warp and filling the same. When necessary, these cloths are first given a de-sizing treatment, either in the open width or on the reels, and allowed to stand for a few hours or overnight. They are then washed, boiled off on the reels, and dyed with direct and developed colors chosen for the least staining effect on the acetate fiber. Some of these qualities are saponified on the reel and dyed solid shades before printing. In the printing of acetate white blends, the cloth with the lowest amount of acetate gives the strongest color value, since the vat colors print stronger on rayon. The spun rayon-spun acetate fabrics are usually printed on dry cans because they are mostly too heavy for air drying, and may or may not need padding after printing. They keep very well before ageing when properly dried, although I have seen whole boxes destroyed by "Heating Up" on single or two color border patterns. In these instances the cast of the ground shade color was entirely changed on the border side where the print color was heaviest, due to an excessive amount of hydrosulfite used in the print paste. These cloths print well without back greys on the new type blanket washers, which were introduced during the war because of the shortage of back-greys. All heavy weight cloths, cottons, Aralacs, spun rayons and mixtures work equally well on this blanket. The popularity of the spun acetate blend is due to the fact that it is low in price, looks like a wool mixture and has good stability and hand because of the acetate fiber. The fabric can be finished in several ways, either with a soft dress finish, a medium resin finish, or the full T.B.L. finishing process. On some lighter qualities, paper back greys are used instead of cotton back greys. The paper greys are difficult to run because they break off

* Presented at meeting, New York Section, October 18, 1946.

when the printing machines are started and stopped. Most of the paper greys can be used only once, altho the heavier qualities have been used on both sides for two runs on the printing machine.

Discharging Acetate Fabrics

During the war the increased production of rayon yarns was used in producing materials for the services where stronger yarns were necessary, such as load-chutes, flares, webbing, etc. The increased production of acetate yarn, not being strong enough for these purposes, found its way into the dress goods trade. This availability of acetate yarn brought up the question of discharging all acetate fabrics. A great deal of work was done on this problem by the yarn manufacturers and the print works themselves before working out satisfactory results. Hydrosulfite "D" was first tried with sodium thiocyanate. Later zinc thiocyanate was tried and gave a better discharge on medium ground shades. Attempts to discharge dark shades to a pure white were not successful on the printing machine, altho it was done by the screen printer. This was due to the fact that not enough of the discharging agents could be furnished the cloth by the small amount delivered from the engraved rollers. Although hydrosulfite D and sodium thiocyanate will give good white discharges on all acetate fabrics, it is more difficult to control than Decroline and Glyecine A. The Decroline is a more efficient discharging agent in this case than the hydrosulfite D and requires smaller amounts of the swelling agent for a good white. At the present time large quantities of all acetate and acetate mixtures are discharge printed in single color white by the latter method. In most of this work the goods have to be dried carefully after printing to prevent mark off on the fabrics. These markoffs occur more frequently on mixed fabrics since the acetate is difficult to discharge and the rayon or cotton in the mixture is more easily affected by the discharging and swelling agents. A further precaution against markoff is taken by drying the goods after aging. It is also good practice to wash these goods thoroughly as soon as possible for the same reason, since materials left in the discharge portion of the print can cause a transfer of the pattern during the further finishing operations.

A great many attempts have been made to develop a line of acetate print styles, but most of them have failed because the acetate cannot be discharged in dark shades. It is possible to print two colored effects in white and dark colors. However, when pastel colors are used, the residues from the acetate discharge spoil the shade wanted and make this a difficult process to shade. Some cross dyed acetate and rayon fabrics have been printed with pleasing effects with a white discharge and a dark vat color.

Saponified Cloth

Great quantities of acetate and rayon have been printed as saponified cloth. These goods are boiled off in the open width on the Hennekin Machine and later are saponified on the reels. The softer fabrics and those with a small amount of acetate seem to work best in this process. A regular acetate and rayon crepe (100 denier) is easily saponified, dyed with direct or diazotized and developed colors, and printed with vat colors by this process. The particular fabric plaits down very flat and close after printing and padding and 30 or .40 pieces can be loaded in one box. Under these conditions, if the goods are left to stand a long time before ageing, damage is sometimes caused because of "Heating up" on account of the fact that saponified acetates are very hygroscopic. This liability to heating up occurs with all saponified cloths; such as broadcloths, shantungs, fuigis, piques, french crepes, etc. Most of the saponified goods of this type are dry box dryed after dyeing because of the hardness of the acetate fibers when dried quickly at high temperature in a pulled or stretched condition. Mill tests made with can dried fabrics versus air dry fabrics prove conclusively that better printing is obtained on the air dried goods. Fine lines are not so pinny and blotches have less tendency to flush when the goods are softer. Tighter printing gums such as British gum tend to hold the fine outlines of the print pattern on flat goods. Since most of the flat fabrics are stuck on the back grey to keep them in fit, some cotton back greys are still required for good work.

Use of Other Colors

Although most of the mixed fabrics are printed with Vat colors, some yardage of straight viscose rayon 100 denier crepes are printed with bright direct and acid colors, applying the urea method. These colors are satisfactory on qualities which are dry cleaned only. Some spun rayon-cotton mixtures and spun rayon "flakes" have been printed with the Rapidogen and Indigosol class of dyestuffs because of their excellent wash fastness.

Bemberg

Very little Bemberg is used in mixed fabrics except in silk and Bemberg or rayon and Bemberg tie goods. Recently some mixtures of Bemberg and acetate sheers have been printed, also some Bemberg and rayon French crepes saponified. The usual precaution for printing Bemberg is used, namely, drying at low temperatures to prevent cracking of the prints.

Other Fibers

Some wool-rayon mixtures have been printed in single color white discharges, but this quality never ran in big volume. Of late cotton-spun rayon mohair fabrics have appeared again for drapery purposes. However, most of this construction is screen printed with a line of fast to light direct colors or chrome mordant colors.

Aralac, the new protein fiber, usually appears blended with rayon and spun rayon fabrics. These contain up to 50 per cent Aralac, spun in the yarn blend, as a plain weave fabric or heavy twill. The heavy twills are difficult to print because they require heavier engravings and higher hydrosulfite content in the vat colors. Better whites are obtained by boiling out the dark ground shades in a reel of hot water, running the goods continuously or passing thru the regular washers before the goods are made up for printing. Some mixtures of acetate, Aralac and rayon are also being printed. On this mixture of three fibers, vat blacks give a better shade than diphenyl or aniline black. Vat blacks and all strong vat colors have to be washed very carefully on this fabric because the colors soap off the Aralac and acetate fibers and stain the grounds. Both Aralac and wool are tendered by the alkali in the vat color pastes, but the yarns are strong enough when blended with rayon. The Aralac blends are finished similarly to the spun acetate, spun rayon mixtures.

The latest fiber to appear in mixtures for printing is cotton. This is being printed as a cotton-acetate mixture similar to the rayon-acetate spun where the acetate is left white. The mixtures are nearly all cotton with only 15 per cent acetate—just enough to give the appearance of wool when dyed. Other types of cotton and rayon mixtures are being used with a nubbed cotton which still contains specks and moats of the cotton fiber. These goods are not bleached, but boiled off and dyed in the reels after a de-sizing treatment. Very heavy cloths of 50 per cent cotton and 50 per cent rayon are also being printed.

Considerable straight nylon has been printed for the armed forces with selected direct and acid colors; the same line of colors which is now used for commercial fabrics, particularly for tie goods. Very

(Continued on Page 12)

One Hundred and Fifty-Sixth Council Meeting

THE Council held its 156th meeting in the Hotel Statler, Boston, Mass., on Thursday morning, December 12th, 1946. Present were President William D. Appel, presiding; Hugh Christison and Henry F. Herrmann, Vice Presidents; William R. Moorhouse, Treasurer; Louis A. Olney, Chairman of the Research Committee; William H. Cady, Carl Z. Draves, Elvin H. Killheffer and P. J. Wood, Past Presidents; Charles H. A. Schmitt and Delbert E. Ray representing Northern New England; Allison R. Fletcher, Howard V. King and Harold B. Sturtevant representing Rhode Island; George L. Baxter, Patrick J. Kennedy and Leonard S. Little representing New York; Boyce C. Bond, James P. Conaway, Arthur W. Etchells and Percival Theel representing Philadelphia; A. Henry Gaede, Samuel L. Hayes and R. Hobart Souther representing Piedmont; William B. Griffin representing Southeast; Arthur T. Brainerd representing Mid West; Wyss L. Barker, Kenneth H. Barnard, George H. Wood, Jr. and Harold C. Chapin, Secretary.

The Secretary's report of the 155th Council meeting and financial report of December 4th, and the Treasurer's report of December 10th, were accepted. Henry F. Herrmann was reported elected President for the year 1947, and John N. Dalton and C. Norris Rabold, Vice Presidents.

Proposed amendments to the By-laws to establish standing committees on conventions and convention technical programs, and to limit Council representation of larger Sections, were passed to letter ballot of the Council. For an earlier unused appropriation to cover purchase of stock on rights, there was substituted an appropriation of $3000 to cover purchase of securities on rights declared upon holdings of the Association, and to complete whole shares from partial shares coming to the Association as stock dividends. It was voted that for the convention then in progress the registration fee for Student members be reduced to $1.50, all going to the local convention committee toward its expenses. The organization of a Georgia School of Technology Student Chapter was approved.

Reporting the expiration of his own term of office as Chairman of the Executive Committee for Research, and that of P. J. Wood as a member of the committee, Mr. Little moved the appointment of J. Robert Bonnar as chairman, and of Samuel L. Hayes as a member of the committee. It was so voted. He reported the appointment of Charles A. Seibert to succeed Charles W. Dorn as Chairman of the Committee on Wash Fastness. There was further discussion of Sectional research committees to cooperate with the Executive Committee for Research, and of how to encourage more complete publication in the Reporter of technical programs at Section meetings.

Dr. Olney reported for the Committe on Publications, with special reference to the 1946 Year Book, now in hands of the printer, but without definite date set for publication. It was suggested that an outline of the organization of Association activities, prepared by the President for the Silver Jubilee Number of the Reporter, be reprinted for distribution to Corporate members, and that all future reports to Corporate members be published in the Reporter. P. J. Wood suggested a "Speakers' Bureau" to assist local Sections in arranging technical programs.

The President suggested that the Councilors from each Section appoint one of their number to report at each Council meeting on local problems and recommendations; that Councilors be provided with minutes of each Council meeting, including summaries of discussions whether or not leading to action, to assist them in reporting Council activities to their Sections; that the Research Director and proposed full-time Secretary visit each Section annually; and that Standing committees have more general Section representation.

January and Wood Co. were elected to Corporate membership. Each of the following was elected to the class of membership specified, as of thirty days from publication of application, unless objection be received meanwhile by the Secretary.

Senior

W. F. Amon
C. M. Anderson
L. B. Arnold, Jr.
R. W. Asmussen
J. R. Bamford
R. R. Barrington
E. Berliner
J. Bestercy
O. B. Billings
G. L. Boehm
S. N. Boyd, Jr.
V. C. Braun
C. K. Brooks
C. D. Brown
V. Bushman
J. M. Cabral
J. Cahill
L. C. Canham
C. E. Carlson
E. A. Chevrette
J. Christie
E. J. Clark
E. Clayton

SECRETARY'S FINANCIAL REPORT—DECEMBER 4, 1946

	Applications	Dues regular & reinstate.	Dues, Corporate & Sustaining.	Miscellaneous	Totals
Received, Aug. 1 to Sept. 20, 1946	304.50	70.00		2,424.20	2,798.70
Received and transmitted to Treasurer, Sept. 20 to Dec. 4, 1946	1,357.50	20,952.00	580.00	1,838.05*	24,727.55
Total	1,662.00	21,022.00	580.00	4,262.25	27,526.25
Leaving deposited by Treasurer with Secretary					2,000.00

* Miscellaneous items

Dividends and interest	329.80
Year books	237.40
Reporters	40.80
Reprints	27.75
Royalties, flammability testers	328.00
Water test apparatus	117.75
Moth cloth	107.50
Crockmeters	171.00
Crock cloth	127.50
Color transfer charts	62.00
Multifiber cloth	131.50
Gas fading units	24.00
Dyed standards	71.00
Knitted tubing	48.00
Buttons	12.00
Analytical methods	1.50
Dry cleaning unit	1.50
	1,838.50
Less bank charges	1.45

C. M. Clevenger
A. F. Conchon
T. F. Cooke
J. F. Corwin
M. S. Cressy, Jr.
J. E. Crosland
R. T. Davies
H. A. Des Marais
F. H. Dickinson
W. A. Edwards
H. L. Eisen
S. W. Factor
L. H. Ferguson
T. M. Ferguson
J. M. Fletcher
T. R. Foltz, Jr.
J. W. Fowler
A. W. Frankenberry
F. E. Frey
A. Geber
J. V. Gibbons
T. F. Gorton
P. A. Graefe
F. C. Grant
E. Grieder
J. L. Grizzell
J. Haigh
C. W. Hannum
W. Harrington, Jr.
A. D. Hawkins
R. H. Heald
C. R. Heilig
F. C. Hewitt
F. B. Hill, Jr.
W. F. Hill
W. H. Hindle
J. R. Hopkins
W. K. Howze, Jr.
W. S. Huber
J. J. Huskey
L. Jacobson
S. J. Kennedy
M. L. Landsberg
J. A. LaSalle
W. S. Logan
M. M. Malian
B. O. H. Malmberg
R. M. Markham
D. E. Marnon
P. E. Mason
B. B. Meady
P. Meeuwsen
R. W. Miller
A. H. Mitchell
C. E. Morrill
R. L. Morris
W. D. Moss, Jr.
E. F. Mulally, Jr.
R. S. Nelson
M. A. Noonan
B. R. Norwick
S. H. W. Nye
W. H. Ogden
J. F. Osterling
E. W. Parr
F. de la Pena, Sr.
M. R. Pesce
H. Ponfick
L. C. Porter
A. F. Ramalho
C. B. Ray
D. F. Reid
H. A. Reinhardt
G. B. Reitz, Jr.
P. B. Reunam
W. P. Reynolds
D. N. Roalf
F. Rossi
C. F. Schilkowsky
S. Schneider
C. Schoener
R. A. Secord
L. Seltenwirth
A. W. Shaw, Jr.
R. G. Sheltman
N. C. Simcoe
H. E. M. Specht
K. C. Spencer
N. J. Stalter
R. K. Stanley
A. W. Staudt
D. H. Terry
A. G. Tew
H. Thackeray
A. C. Tressler
L. G. Trimmier
I. Unger
L. Upshur
P. W. Van Vlissingen
A. S. Waldman
W. R. Waldron
G. E. Wallace
R. R. Waski
J. H. Werntz
H. L. Wetzstein
E. G. Wiest
I. B. Wingate
N. J. Wolfram
J. A. Yeager
J. B. Wray
B. G. Zimmerman

Junior

C. W. Ansley, Jr.
J. J. Barnhardt, Jr.
S. Berger
A. C. Campbell
H. J. Fenton, Jr.
F. T. Galt
H. G. Hurley
C. Judson
R. M. Legg
W. E. Lincoln, Jr.
A. A. Margolin
M. E. McCarthy
R. D. McCarty
G. C. Montella
H. E. Ness
I. M. Panik
J. Patti
A. M. Raphael
F. D. Sternbach
C. T. Verga
H. A. Wolk

Associate

L. G. Arruda
L. L. Barnes
T. A. Bourne
T. M. Buzzo
J. R. Calhoun
O. G. Carpenter
T. C. Catlin
W. J. Crawford
J. A. Deville
L. W. Elder
A. Epstein
H. H. Gillman
A. J. Henry
C. F. Hoffman, Jr.
D. S. Hsu
C. R. S. Iyer
W. P. Jacobs
V. S. Kulkarni
H. A. Langensiepen
S. Liladhar
H. J. Lodeesen
F. P. Lohr
C. Mackenzie
P. T. McNally
A. L. Nicholson
G. W. Parker
L. S. Poer
R. J. Read
P. E. Redding, Jr.
A. R. Sahasranam
R. N. Semler
S. M. Silver
E. L. Thivierge
F. M. Truesdale

Student

C. H. Allard
B. Baum
W. L. Boule
W. E. Broadwell
W. T. Brown
D. F. Callahan
P. P. Cook
J. R. Cramsie
A. Darowalla
R. C. Davis
A. H. DeMarco
R. N. Edkins
J. Evans
W. Evans
D. A. Gordon
F. H. Gurry
A. D. Hodes
R. A. Holt
W. L. Imershein
W. J. Kennedy
G. D. Kenniston
G. W. King, Jr.
H. M. Lachut
D. Leshin
W. D. Lippman
F. R. Lopez
F. R. Macuga
T. B. Manheim
R. G. Manudhane
E. T. McElwain
C. S. Miao
F. T. Norris
W. L. Patton
R. J. Peirent
S. E. Penner
R. W. Rahe
D. H. Rao
M. Rhodes
R. C. Richardson
L. E. Seidel
C. C. Shah
R. F. Sherriff
R. B. Simon
E. H. Stall
E. R. Stall, Jr.
S. Stiefler
J. F. Stroup
L. Tigler
J. K. Waits
D. A. Watson
W. P. Walker, Jr.
B. V. White, Jr.
V. B. Wright, Jr.

Transferred from other memberships to Senior Membership were: E. E. Allen, J. H. Binns, J. Boyko, R. A. Carroll, M. M. Cooper, T. J. Dabrowski, R. J. Dion, A. F. Felgendreger, S. K. Ford, A. H. Grondin, R. E. Hawes, R. M. Howorth, N. A. Inkpen, E. L. Johnson, F. F. Kobayashi, P. G. Kolupaev, R. C. Lawrence, D. M. Lindsley, E. J. F. Maslanka, N. H. Nuttall, H. C. Olsen, F. Peterson, F. K. Ray, G. R. Turner, E. A. Zillessen, B. G. Zimmerman.

Respectfully submitted,
H. C. CHAPIN,
Secretary

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Meeting, N.N.E. Section, January 17th

A MEETING of the Northern New England Section will be held at the Hotel Manger in Boston on January 17th.

The speaker will be Harold C. Whiting of the A. C. Lawrence Leather Co. of Peabody, a well known expert in the leather field, who will speak on the preparation and use of leather. It is expected that he will devote much time to uses of leather in the textile industry. He will support his talk with a display of different types of leather both unfinished and finished.

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Winter Meeting, Piedmont Section, January 25th

THE winter meeting of the Piedmont Section will be held at the Poinsett Hotel in Greenville, S. C., on January 25th.

The technical session will be held from three to five p.m. A symposium on "The Production of Fast Shades on Mixed Fibers" will be the general subject. Larry S. Thompson of General Dyestuff Corp. will lead a discussion on the "Dyeing of Fast Shades on Piece Goods Containing Cotton and/or Viscose Mixed with Wool." Robert Turner of the duPont Company will collaborate with Harry Clapham on "The Dyeing of Fast Shades on Piece Goods where Nylon and/or Acetate are in Mixtures Containing Wool." Ormond W. Clark of the Calco Division of American Cyanamid will present a paper on "The Dyeing of Fast Shades on Yarn Containing Mixed Fibers — Cotton-Wool-Nylon-Acetate-Viscose, etc."

An open forum discussion will be directed by James Harrell of the Ware Shoals Division, Riegel Textile Corp.

The Banquet at 7:30 p.m. will be presided over by Wyss L. Barker of the National Aniline Division of Allied Chemical & Dye Corp., chairman of the section. The banquet speaker will be Edwin L. Jones, executive vice-president of J. A. Jones Construction Co. of Charlotte. His subject will be "Oak Ridge from the Inside." Banquet reservations should be made through R. J. Beauregard, Fairforest Finishing Company, Spartanburg, S. C. and hotel reservations directly with the hotel.

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Meeting, Rhode Island Section, January 24th

THE Rhode Island Section will hold its next meeting at the Providence Engineering Society Hall at 8:00 p.m. on January 24th. The Intersectional Paper which won 3rd prize in the Contest at the Silver Jubilee Convention will be read by Alden D. Nute. C. H. A. Schmitt will present a paper on Metachrome Dyeing—Part II: "The Effect of Iron on Shade and Fastness Properties."

An informal dinner will precede the meeting and will be held at 6:15 p.m. at "The Mindon," 123 Waterman Street.

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Membership Applications

ASSOCIATE

Thomas C. Catlin—Technical Director, Gilbert Paper Co., Menasha, Wis.

Lucius Williams Elder — General Foods Corp., Hoboken, N. J.

Arthur Epstein—Asst. General Manager, Sherman Bros., Inc., New York, N. Y.

H. Harmon Gillman—Manager, Materials Development, Gates Rubber Co., Denver, Colorado.

D. S. Hsu — General Manager, Cathay Aniline & Chemical Corp., Shanghai, China.

C. R. S. Iyer—Sales Manager, Exel Trading Corporation, Bombay, India.

William P. Jacobs—President, American Cotton Manufacturers Association, Charlotte, N. C.

Vinayak Shridhar Kulkarni — Dyeing, Bleaching & Finishing Master, Dhanamall Silk Mills, Surat, India.

Herbert A. Langensiepen—Manager, Rio Trading Co., Ltd., Shanghai, China.

Shivjee Liladhar—Colour Merchant, Bombay, India.

H. J. Lodeesen—Asst. Director of Research, Parker Rustproof Co., Detroit, Mich.

Fred P. Lohr—Technical Salesman, Marathon Corp., Rothschild, Wis.

Anne L. Nicholson—Librarian, Pennsylvania Salt Manufacturing Corp., Whitemarsh Research Laboratories, Chestnut Hill, Pa.

George W. Parker—President & Treasurer, Parker Prints, Inc., North Charleston, S. C.

Lee Scott Poer—Salesman, Penick & Ford, Ltd., Inc., Cedar Rapids, Iowa.

Robert J. Read—Salesman, Watson-Park Co., Boston, Mass.

Ayyangar Rajagopal Sahasranam—Chemist, Savana Mills, Pondicherry, India.

R. Norman Semler — Asst. Advertising Manager, American Cyanamid Co., Textile Resin Dept., New York, N. Y.

Ernst L. Thivierge — Purchasing Agent, The Aspinook Corp., Hampton Print Works Div., Easthampton, Mass.

Freeling Murray Truesdale—Sales Manager, Marathon Corp., Rothschild, Wis.

STUDENT

Claude H. Allard—Lowell Textile Institute. Sponsor: E. E. Fickett.

Bernard Baum—Lowell Textile Institute. Sponsor: E. E. Fickett.

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Paul P. Cook—Georgia School of Technology. Sponsor: C. A. Jones.
Frank H. Gurry—Georgia School of Technology. Sponsor: C. A. Jones.
Alvin D. Hodes—Georgia School of Technology. Sponsor: C. A. Jones.
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William D. Lippmann—Georgia School of Technology. Sponsor. C. A. Jones.
Chia San Miao—Georgia School of Technology. Sponsor: C. A. Jones.
Walter L. Patton — Georgia School of Technology. Sponsor. C. A. Jones.
Edward Holmes Stall—Georgia School of Technology. Sponsor. C. A. Jones.
Earle R. Stall, Jr. — Georgia School of Technology. Sponsor. C. A. Jones.
Burwell V. White, Jr.—Georgia School of Technology. Sponsor: C. A. Jones.

APPLICATIONS FOR TRANSFER TO SENIOR MEMBERSHIP

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R. A. Carroll
M. M. Cooper
T. J. Dabrowski
R. J. Dion
A. F. Felgendreger
S. K. Ford
A. H. Grondin
Ruth M. Howorth
N. A. Inkpen
E. L. Johnson
F. F. Kobayashi
P. G. Kolupaev
R. G. Lawrence
E. J. F. Maslanka
N. H. Nuttall
H. C. Olsen
F. Peterson
F. K. Ray
G. R. Turner
E. A. Zillessen

Your New President . . .

HENRY F. HERRMANN

HENRY F. HERRMANN, of General Dyestuff Corporation has been elected president of the American Association of Textile Chemists and Colorists. Mr. Herrmann is a member of the New York Section of the Association, and was chairman of that section for two terms. In the national body, he has served on the council and on the research committee, and as chairman of the publicity and corporate membership committees. In 1945 he was elected vice-president.

Mr. Herrmann received the Bachelor of Science degree with a special Certificate of Merit in Chemistry from the College of the City of New York in June, 1913 and later completed a post graduate course in Coal Tar Dyes at Brooklyn Polytechnic Institute. He entered the employ of the Cassella Color Company in August, 1913, and remained with this organization when it became the Century Colors Corporation during World War I and finally merged with the National Aniline and Chemical Co., Inc. In October, 1928, he entered the employ of the newly formed General Dyestuff Corporation and became manager of their New York Sales Department. In 1940 he was transferred to the executive administration of that company. Mr. Herrmann is the author of several papers on the technical and economic aspects of the dyestuff industry, on dyeing and finishing of textiles, and on informative labeling of textiles.

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Additional Membership Applications

SENIOR

Robert W. Asmussen—Prof. of Chemistry, Technical University, Copenhagen, Denmark. Sponsors: N. Gralen, H. C. Chapin.

Orman B. Billings—Research Chemist, duPont Co., Wilmington, Del. Sponsors: J. Killheffer, C. A. Sylvester.
Samuel N. Boyd, Jr.—Research Chemist, duPont Co., Wilmington, Del. Sponsors: J. Killheffer, C. A. Sylvester.
Joseph M. Cabral—Supt., Dyeing, Newport Finishing Co., Fall River, Mass. Sponsor: P. Strengs.
John Cahill—Tech. Sales., Watson-Park Co., Boston, Mass. Sponsors: F. A. Prisley, K. Park.

C. M. Clevenger—Research Chemist, American Viscose Corp., Nitro, West Virginia. Sponsors: D. B. Wicker, H. F. Creegan.

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William J. Crawford—Chemist, Cranston Print Works, Cranston, R. I. Sponsor: H. J. Cranston.

Morton S. Cressy, Jr.—Mgr. Foreign Dept., Calco Chem. Div., Bound Brook, N. J. Sponsors: R. R. Sleeper, B. L. West.

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Paul B. Reuman—Textile Develop. Engr., Walter Kidde & Co., Belleville, N. J. Sponsors: H. P. Baumann, A. J. Ramunda.

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Roy A. Secord—Tech. Serv. Repres., duPont Co., New York, N. Y. Sponsors: T. E. Bell, C. B. Hess.

H. E. M. Specht—Research Chemist, Cranston Print Wks., Cranston, R. I. Sponsor: H. J. Cranston.

Neil J. Stalter—Assist. Mgr., duPont Co., Electrochem. Dept., Wilmington, Del. Sponsors: T. E. Bell, C. B. Hess.

Daniel H. Terry—Chemist, Gen. Aniline & Film Corp., Grasselli, N. J. Sponsors: J. Werner, J. Taras.

Gordon E. Wallace—Foreman, Cranston Print Works, Cranston, R. I. Sponsor: H. J. Cranston.

Harlan L. Wetzstein—Supervisor of Research, Am. Maize Products Co., Roby, Indiana. Sponsors: W. B. Strickland, C. F. Goldthwait.

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Audrey C. Campbell—Staff Memb., Text. Research, General Electric Co., Bridgeport, Conn. Sponsors: P. B. Mack, S. Davison.

Harry J. Fenton, Jr.—Head Dyer, Murray Hosiery Mill Co., Murray, Kentucky. Sponsors: L. Hoehn, Jr., B. H. Sharman.

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Printing—

(Concluded from Page P7)

little nylon has been used in combination with other fibers for print fabrics. As more nylon staple is produced, undoubtedly mixtures of this fiber will be presented for printing.

The many problems involved in printing these mixed fabrics require frequent changes of printing methods and color types. It is difficult to predict just what result will be obtained on a given fabric. A color which is OK on one mixture is not good on another of the same fiber type. As new fibers are added to the list of the old ones the problem of printing these qualities becomes more and more complex and varied. However, the success attained in the past by the dyer, printer, and colorist in processing present day mixed fiber constructions forecasts continued ingenuity and resourcefulness in solving any future problems in the industry.

CALENDAR OF COMING EVENTS

NEW YORK SECTION
Meetings: January 31, March 7, May 2.

RHODE ISLAND SECTION
Meetings: January 24, February 28, March 28. April 25. (Providence Engineering Society Hall. 195 Angell Street, Providence.)

PHILADELPHIA SECTION
Meetings: January 17, February 28, April 11 May 23.

NORTHERN NEW ENGLAND SECTION
Meetings: January 17, March 21, April 25, May 16, October 17, November 21.
Outing: June 13.

SOUTH CENTRAL SECTION
Meeting: January 18. (Hotel Patten, Chattanooga, Tenn.)

PIEDMONT SECTION
Meeting: January 25 (Poinsett Hotel, Greenville, S. C.)

EMPLOYMENT REGISTER

This column is open for four insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association, Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers, who can obtain further information through the code numbers from the Secretary.

46-20

Education: Chemical Engineer, Helsingfors Univ., and Finland Inst. of Tech.

Experience: Organic chemical research, nearly 20 years head of bleaching, dyeing and finishing dept. handling linen, cotton, jute, etc., in Finland.

Age 46; married; references in U.S.A.

46-21

Education: A.B., Brooklyn College; graduate study, chemistry, N. Y. Univ.

Experience: 1½ years' laboratory control and development work; 1½ years in U.S. Army photographic laboratory.

Age 25; single; references.

46-22

Education: High School.

Experience: 24 years dyeing pile fabrics and yarns of various types.

Age 45; married; references.

Fabric Finishing*

RICHARD W. POWELL

Research Director, Bradford Dyeing Association (U. S. A.)

THE modern trend in the finishing of woven textile fabrics is directed as never before towards satisfying a rising consumer demand for faster colors and more durable finishes. This is not to say that the requirements of yesterday have gone by the board. In normal times eye appeal and hand are just as important as they ever were, but the woman who buys yard goods or wearing apparel today is not going to be satisfied with these two attributes alone. She also wants to know—will it wash, will it fade in the sun, will the finish wash out, will it shrink, and so forth. This tendency has been accelerated of recent years by various institutions representing consumer groups by certain progressive mills, finishers and converters, and by descriptive national advertising by chemical firms using trade name processes. The publicity given to various new products and processes has resulted in the education of the consumer to demand colors and finishes which at least will last the life of the garment.

In my talk this afternoon I am going to stress particularly some of the newer methods of producing these faster colors and more durable finishes about which you have all no doubt heard a great deal.

The finishing of woven textile fabrics may be divided for our purpose into three main sections:

1. *Bleaching or Preparation* — which includes all steps necessary to clean the goods, to remove naturally occurring impurities such as waxes, pectins and leaf from cotton and other natural cellulosic fabrics, and to remove sizing material and oil from both natural and synthetic fabrics.
2. *Dyeing*—
3. *Finishing* — which comprises the treatment of the goods after dyeing, to enhance the characteristics of the fabrics themselves, or to confer new characteristics as for example, luster, softness or crispness, crush resistance, shrinkage control and dimensional stability, water-repellency, mildew resistance and so forth.

Bleaching

Continuous Peroxide Bleach

The most significant development in this field is that of the continuous peroxide bleaching process, which was in the pilot plant stage just prior to the war, but is now in operation in an increasing number of finishing plants, and appears likely to supplant completely, established procedures which have been current practice for a great many years. The equipment may be designed to handle cloth in either open width or rope form. After the usual singeing and desizing the cloth is rinsed, saturated with caustic soda, passed through squeeze rollers and plaited down into a J box where it is allowed to steep for 1 to 1½ hours depending upon the weight and construction of the goods. Prior to entering the J box the cloth is passed through a steam heater tube or it may be heated in the J box itself by means of live steam. This cycle of operations is then repeated with an alkaline peroxide saturation, and the cloth is plaited into a second J box for 1 to 1½ hours, washed and pulled into the white bin. Operating speeds vary from 100 yards per minute to an excess of 200 yards per minute depending on the type of cloth being processed. Advantages of the process are savings in labor and time compared with the older kier boiling procedures, uniformity of bleach, and consequent elimination or curtailment of rehandling costs. There does not seem to be any agreement at the moment among mills operating the process, as to chemical savings. Some mills find their chemical cost to be about the same as that of the older method, while other mills claim a slightly lowered cost. The process may be adapted to the bleaching of cloth containing colored effect threads, such as yarn dyed striped shirting and the like.

Dyeing

DuPont Pad Steam and Williams Unit

Among recent advances in the art or science of dyeing are the DuPont continuous pad steam process for the dyeing of vat colors and the use of the Williams Unit for the same purpose. These two processes are contributing greatly to the fulfillment of the modern trend for colors which are good for the life of the garment. Prior to the development of these processes, the use of which was given impetus by the war stimulated demand for hundreds of millions of yards of vat dyed cotton goods for the use of the armed forces, the most satisfactory method of applying vat colors to piece goods from an appearance and fastness stand point was the so-called pad jig method. In this process, a suspension of the vat pigment is applied to the cloth by means of a padder, and the cloth is batched onto rolls of 500/1000 yards. The individual rolls are then transferred to jigs where reduction of the dyestuff to the soluble leuco state takes place and the dyed cloth is washed, oxidized, and soaped to its final shade. Such an operation is very time-consuming and a single roll of cloth may require 3 to 4 hours to process.

In the DuPont method which bears some similarity to established procedures for the printing of vat colors, the cloth is padded through a suspension of the vat pigment as in the pad-jig method. After padding, the cloth may be dried or not depending on its type. It then passes through a chemical padder containing a solution of caustic soda and sodium hydrosulfite at a temperature of 90° F. and into a steamer, where it is steamed for 10 to 30 seconds with moist air-free steam at a temperature of 212-214° F. Washing, oxidation and soaping of the dyed goods may follow in compartments in line with the pad steaming equipment or the cloth may be transferred to a continuous soaping range for this purpose. Ranges can be designed to include the complete operation of padding, drying, impregnating, steaming, oxidizing, soaping and drying. Operating speeds run from 80 to 150 yards per minute, depending on the type of cloth being handled and the equipment available. Savings in labor and in chemical costs are appreciable and properly con-

* Address at Annual Meeting, National Association of Cotton Manufacturers, Boston, Mass., October 10, 1946.

trolled equipment will produce results of equal fastness and appearance to the pad-jig method.

The use of Williams Units for vat dyeing is an outgrowth of an older continuous method of vat dyeing which was developed in the late 20's. In this method the cloth was first padded with a leuco solution of the vat color, passed into one or more so-called booster boxes or tanks with a capacity of several hundred gallons and containing a solution of caustic soda and hydrosulfite and finally into additional boxes for oxidation and soaping. The older process had several drawbacks—in the first place the fastness and appearance of the dyed result was not as good as pad-jig dyed goods, and the uniformity of the shade was exceedingly difficult to control. Secondly, the large initial requirements for chemicals used in the booster boxes limited the use of the process to yardages of not less than 20,000 yards per shade. Some improvement was made in this older method of continuous dyeing by padding the cloth through a dispersion of the pigment as in pad-jig dyeing, drying the goods and then padding the dried cloth through the usual reduction solution and allowing it to pass into the boosters in the manner already described. This modification resulted in a better dyed appearance and better fastness, but the mechanics of the process were such that large yardages per shade were still required in order to make the operation economical. Mainly on account of this factor the use of these continuous processes were limited largely to those plants finishing large yardages of work clothing, low end shirtings and the like.

The Williams Units replace the larger booster boxes in the recently improved method of continuous vat dyeing and as the volume of liquor which they use is less than one-tenth that of the booster due to their special construction, much smaller yardages can be run economically with this type of equipment.

The units occupy little space, each unit being approximately 4′ long and 5′ deep. The capacity of the unit is 12 yards and the volume 60 gals. Each unit contains 4 wells, each well having a ½ inch spacing on each side of a removable baffle. The material passes through this narrow channel and due to the confinement of the area of travel a pressure is developed at high speeds along with a fast moving circulatory action of the treating solution. The movement of material with the solution accounts for the speed of reduction obtained with vat colors.

Cloth is padded through a vat color dispersion, dried or not as the case requires, and passed through one or more Williams Units where reduction and dyeing take place. The pieces are then washed, oxidized and soaped as usual. The method has similar advantages to those of the DuPont steam including chemical and labor savings. There still remain certain problems to be solved, however, in connection with the use of this equipment. For example, chlorine fast bright blues are difficult to produce and heavy shades present certain problems in securing the proper fastness.

Pigment Dyeing

No description of modern fast color dyeing methods could be considered complete without some mention of pigment dyeing. The basic method of coloring textile piece goods by means of pigments bonded to the fiber is probably among the earliest methods of coloration known. Until the last few years the process was little used except for the cheapest class of work, where a certain amount of pigments was used in printing, together with albumin, starch, or casein as a binder.

Increasing knowledge of the properties of synthetic resins and development of new pigments with outstanding resistance to light has resulted in a rebirth of interest in the process. As a result of intensified research and development on the part of chemical manufacturers and finishing plants, the process is now finding its place among other methods of producing fast colors on textiles. The method is quite simple in its essentials, but there are many difficulties which have to be ironed out in practice. There are several possible methods of producing the color formulations used, but in the two most widely used methods selected blends of synthetic resins of both the thermosetting and thermoplastic types chosen for their excellent wash fastness on textiles are dissolved in a suitable organic solvent and emulsified to produce either an outside oil phase emulsion or an outside water phase emulsion. Extremely fine dispersions of pigments are mixed with the resin emulsions and the color mix applied to cloth by means of a two or three roll padder. The cloth is dried under controlled conditions and cured at elevated temperatures to polymerize the resin binders and produce a wash fast result. The advantages of the process are simplicity of application, and continuous operation with excellent uniformity of shades. Color costs show some saving over vat colors in the majority of instances. Pigment dyeings are currently being applied to a wide variety of cotton cloths, but the volume does not approach that of vat dyeings. The most serious drawback of the method is the moderate crock fastness which limits the use of the method to light and light-medium shades. Light fastness with properly selected pigments is at least the equivalent of vat dyes and wash fastness is fair. There is some tendency for removal of pigment on extended laundering and some cloths exhibit whitish marks due to local removal of pigment by mechanical action. For specialized applications the pigment colors are very well adapted. They proproduce excellent results in light and medium shades on some of the newer fibers, such as nylon, Fortisan, Fiber A, Vinyon and glass, where conventional dyestuffs either cannot be used, or their use entails some sacrifice of fastness and appearance.

Finishing

In considering the final finishing operation, I propose to omit any discussion of treatments which confer only a temporary effect on the cloth, mechanical treatments such as calendering, decating, breaking, embossing, and the use of starches, gums, weighting material and softeners, and confine my remarks solely to a description of some of the newer durable type finishes, which have been devloped within recent years.

The modern durable finishes may be roughly sub-divided into three classifications: (1) Those reacted on the surface of the fiber; (2) those reacted largely within the fiber; and (3) materials which react directly with the fiber itself. There is some overlapping of these classes and they are outlined in this manner merely to simplify a discussion of their various characteristics.

Finishes Reacted on the Fiber Surface

Water Repellent Finishes

An outstanding example of the first class, which represents by far the greatest number and variety of finishing materials, is the durable water repellent finish typified by Zelan and Norane. These products were used in great volume during the war to produce water-repellent finishes on cotton poplins, oxfords and sateens for use by the armed forces. The Q. M. Corps contributed in large measure to a knowledge of their properties, their correct method of application and their durability under field conditions. In combination with the Shirley type cloth they produced the most satisfactory water repellent garment used during the war. The products are applied in water emulsion form on a padder, usually dried on a tenter frame at controlled temperatures and subjected to much higher temperatures for a short time during which curing is effected. The treated cloth is then neutralized to remove residual acid generated in the curing op-

eration, and dried. Satisfactory water repellency of properly treated cloth is retained through several launderings and dry cleanings, but it is essential that all traces of soaps and oils be thoroughly rinsed out after cleaning or laundering.

An interesting possibility for the future production of durable water repellent finishes involves the use of certain organo silicon halides, known as silicones. These chemicals have been used largely for the treatment of ceramic insulating materials where they have been applied in the form of a vapor. Vapor treatment of textiles is something new in the industry and there are a good many application bugs to be ironed out before the process becomes commercially feasible.

Finishes Producing a Particular Type of Hand

There is an almost infinite variety of synthetic resins and other materials such as cellulose derivatives which can be used for this purpose. In addition many of these products confer other valuable properties upon textile fabrics, such as a reduced tendency to shrink, improvement in tensile strength and better resistance to wear.

The alkali soluble cellulose ethers and the alkali solutions of cellulose can be used to produce a wide range of finishes from full soft finishes to crisp organdie type finishes. They are usually applied to fabrics from caustic soda solutions by padding and the cellulose is insolubilized by passing through a bath of either sulfuric or acetic acid, by plain boiling water or by drying. Pigments may be incorporated with them to produce colored effects for certain purposes, although the color does not have a high degree of wash fastness and in addition crocks badly. It is claimed that these cellulosic materials improve tensile strength and abrasion resistance and that the treated cloths have a reduced tendency to shrink. For these reasons they have been used quite extensively on sheeting and low end shirtings and for the production of imitation organdie finishes. They have also been applied to certain delicate fabrics in the greige, to prevent yarn slippage and distortion in subsequent processing. This group of finishing materials is relatively inexpensive but its use requires a special machine set up in a finishing plant.

Partially polymerized thermosetting type resins such as urea formaldehyde and more recently melamine are also widely used to build up the hand and produce crisp linen-like finishes, particularly on spun rayon fabrics. They are usually applied from water solution by padding, drying and curing at high temperature to complete the polymerization of the resin and render the finish wash fast. Their use on cotton fabrics has been limited due to their so-called chlorine retention properties, which means that cloth treated with these resins tends to pick up chlorine during commercial laundering. During pressing or ironing the retained chlorine is converted to acid resulting in tendering of the goods. This condition is not nearly as marked with melamine resins as with ureas. But it does exist in both cases. A notable example of the use of this type of resin is in the well-known durable glazed chintz finish, and these resins also form the basis of many of the so-called slip-proof finishes on the market today.

The use in textile finishing of thermoplastic synthetic resins is of comparatively recent origin. They are invariably applied from aqueous emulsions or dispersions of the polymerized resin. Due to the fact that they are already fully polymerized they are applied merely by padding on to the cloth and drying. No curing is required. The first group of resins of this type used commercially on textiles were the acrylics and their derivatives. They produce a wide range of finishes varying from soft and elastic to hard and crisp. As the resins are colorless and transparent (you will recall that this was the type used extensively during the war under the trade names Plexiglas and Lucite for the production of bomber noses and cockpit enclosures) they enhance the appearance of the finished cloth. One member of this group may be used for the production of durable delustered finishes on rayon.

Other thermoplastic resins which have come on to the market within the last year or two in a form suitable for textile application are the vinyl resins and their derivatives and the styrene resins. In the earliest stage of textile development are the polythenes some of which have been found in England to produce very soft, full wash resistant finishes. The use of the vinyls and styrenes has not been fully explored as yet, but they show excellent possibilities in the production of specialized types of finishes. For example, since polyvinyl chloride is extremely fire resistant it may be used in the production of durable flame proof finishes when applied in conjunction with antimony oxide. By combining certain members of each type of resin with high melting point waxes, water repellent fabrics may be produced, since some of these resins have remarkable resistance to water. The sodium salt of one of the styrene derivatives has pronounced anti-static qualities and may find a use in the production of anti-static finishes or synthetics, such as nylon, which tends to build up strong charges of static electricity. Examples cited are not necessarily out of the development stage, but will serve to indicate some of the possibilities inherent in the use of the thermoplastic types.

Finishes Reacted Within the Fiber

Crease Resistant Finishes

The crease resistant finish is the outstanding example of the use of synthetic resins reacted within the fiber itself. Resins used are almost exclusively of the urea formaldehyde or melamine formaldehyde type and they are applied to the cloth from water solutions along with acid forming catalysts. In order to obtain penetration into the core of the fiber it is necessary that the size of the resin molecule shell be extremely small and for that reason the resins are applied in as close to the monomeric state as it is possible to produce them. After padding and drying, the treated cloth is cured at elevated temperatures to polymerize the resin within the fiber. A subsequent light wash removes traces of surface and unreacted resin. Properly applied these resins produce full soft hands without stiffening or crispness, and with marked improvement in crease-resistant properties. They have been one of the major factors in the vast increase in the use of spun rayon and spun rayon blends in apparel wear. Their use, however, requires exact control of drying and curing temperatures and catalyst concentration. All steps in the treatment of cloth going into this finish must be carried out with a minimum of tension, if proper results are to be secured. In addition, the construction of the cloth is very important, and denier size, length of staple and twist all exert an important influence on the finished result.

Finishing Materials Which React Directly with the Fiber

While a few finishes of this type, *e.g.*, mercerizing and parchmentizing have been produced for a great many years, there are certain finishes in the development stage and also in production which are comparative newcomers. I refer to the several processes which are now available for the shrinkage control and stabilization of viscose rayon piece goods. Three main types of treatment are in use for this purpose:

1. The first method and that which has seen the biggest volume of production up to the present time involves the application to the cloth of varying concentrations of aldehyde resins. As in the case of the crease-resistant finish, urea and melamine formaldehydes are most commonly used, but the industry is not limited

(Continued on Page 17)

• PATENT DIGEST •

PAUL WENGRAF

Printing Mechanism—Back greys omitted D, 3

U. S. P. 2,404,350 (The Aspinook Corporation, Carlsen-Heinrich, July 23, 1946)

It is general practice to employ in the printing technique backing blankets and "back greys." The latter run between the fabric to be printed and the backing blanket. The present patent specification states that attempts to omit the expensive back greys have been made but that consequently complicated washing and drying devices had to be used which not only required very long blankets but necessitated also drying cans, inserted between the washing and the printing step. The invention solves this problem by working with a relatively short blanket (10) running from the press cylinder (12) over idle roll (19) to a scrubbing device, consisting of a bath (28) contained in a trough (29). The cleaning fluid, being either an aqueous cleaning agent or an organic solvent is applied partly by a brush (27) and chiefly by spraying means (33) as shown in Fig. 2. This spraying nozzle is suspended by chains (35, 35) (see Fig. 2) and carries on both ends guide projections to receive the edges (24) of the blanket and to follow any oscillating movement. Excess fluid is removed by a doctor blade (46), extending obliquely over the blanket. By carefully regulating the tensioning roll (25) and the hand wheel (45) the blanket should only retain less than 1% moisture after returning to the printing machine. Lint and color particles will be collected at the edge of the blade and sheered obliquely to the edge of the blanket (Fig. 5). An unprinted margin remains on the blanket, free from these deposits, thus preventing creeping of the dirty fluid to the inner side of the blanket.

Fig. 2

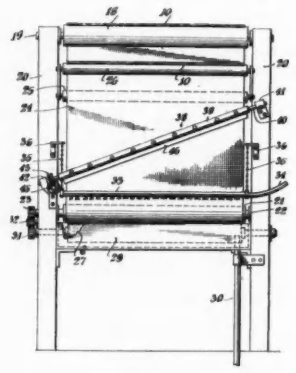
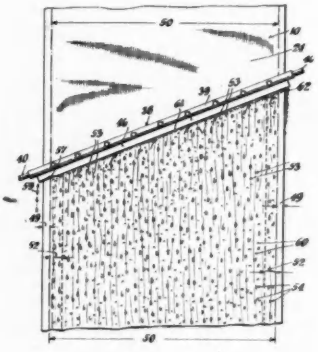
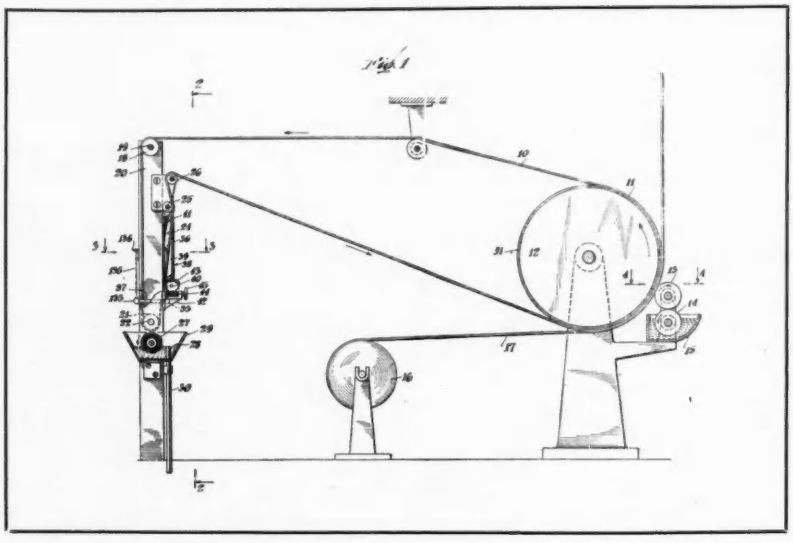


Fig. 5





Acetate Cellulose, Dyeing with diazotized dyestuffs C, 4, 07

U. S. Patent 2,403,900 (Amer. Aniline Prod., G. L. Armour, July 16, 1946)

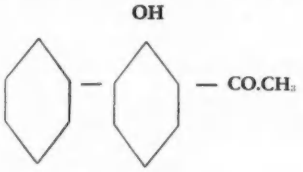
Direct dyes, diazotized and developed with beta-oxynaphthoic acid are generally used for dyeing acetate rayon. Difficulties have been encountered in adding hydroxynaphthoic acid in the developing bath because of its poor solubility in neutral media. It is general practice to form the water soluble alkaline salt and to bring it later on into a coupling condition by slightly acidifying the bath, adding lactic or formic acid to obtain a pH of 5 -6. This method is accompanied by numerous hazards, a too alkaline condition being as undesirable as a too acid medium. The present invention protects the preparation of a reaction product of *beta-hydroxynaphthoic acid and sodium formate* which proves to be readily water soluble. The equation of the reaction occurring while this mixture is stirred into hot water is believed to be $C_{10}H_6OH.COOH + H.COO.Na + O = C_{10}H_6OH.COO.Na + H_2O + CO_2$. The oxygen comes probably from the atmosphere. The dyed and diazotized cellulose acetate is immersed in this liquid at 35-40° C. and the temperature is raised within half an hour to 60° C.

Earlier work done in this field: Brit. P. 543,901 (Brit. Celanese) discloses a method of dyeing acetate cellulose by using a diazotized aromatic amine and hydroxynaphthoic acid amide. U. S. P. 2,048,796 (Celanese) recommends to impregnate the fibers with naphthol, base and glucose at the same time and to diazotize this mixture with a solution of sodium nitrite and acetic acid. According to Ger. P. 609,475 (Aceta) the drawback of poor solubility of hydroxybetanaphthoic acid is here eliminated by transforming the product into an acetylated compound by reacting it with acetic anhydride, thus improving the penetration. This compound is split thereafter upon the fiber with ammonia. In contradistinction to the invention abstracted above the diazotized amino-dyestuff-component is applied here in the second phase.

Mildewproofing cloth—Diphenyl derivatives G, 1

U. S. P. 2,403,945 (Pacific Mills, Musser, July 16, 1946)

A group of chemical compounds which is very useful for mildewproofing cloth and other fibrous materials has been found in the class of esterified acetylhydroxydiphenyls for instance the product:



It has to be soluble to a certain extent in water but on the other hand it should not be soluble enough to permit unduly leaching out in rainy weather. The products protected by the present patent are generally applied from a solvent (such as benzene or alcohol) or from an alkaline solution; in this event the fabric has to pass in a second operation an acid bath to precipitate the diphenyl. So, for instance, a bleached cotton fabric is padded in an alkaline solution of the sodium salt of aceto- o-hydroxydiphenyl (formula above) so that the fabric picks up about 75%. It is thereupon passed through acetic acid. The content on mildewproofing agent was about 0.75% of the fabrics weight. Even after leaching the fabric at 65° F for 24 hours, so little of the compound was removed that the growth of inoculated bacteria *(Chaetomium globosum)* was completely inhibited.

Phenolic compounds have been proposed in some other publications as insecticides, mothproofing agents and germicides. As examples the following may be quoted at random: U. S. P. 2,366,203 and 2,335,845 (Dow Chemical)—dichlorophenyl- dialkylethers are insecticides; U. S. P. 2,309,969 (Geigy)—substituted aminodiphenylsulfonates are mothproofing agents; U. S. P. 2,289,476 (McCormick)—orthophenylphenol used as germicide.

Cellulose Acetate Dyeings—Fumeproofing C, 4, 07

U. S. P. 2,403,019 (Brit. Celanese—Olpin-Gibson—July 2nd, 1946)

It is quite generally known that certain dyeings on cellulose acetate undergo change of shade on exposure to an atmosphere, containing coal gas combustion products. It has been found that resistance of these dyeings (the blue dyestuffs of the aminoanthraquinone series particularly affected) can be improved by padding the fabrics with solutions of *formaldehyde-polyamine condensates.* Examples for the polyamine components are ethylenediamine and hexamethylenediamine as well as cyclic polyamines such as melamine. In an example powdered melamine is dissolved in 37% formaldehyde at moderate temperatures (50-55° C.). This pre-condensate is acidified and added to an impregnating bath, the pH-value of which is between 4 and 5. After drying the fabric is heated to a curing temperature of 130° C. The resinous solids remaining in the goods are 2% at a maximum.

Reference: Parallel patents are the Brit. P. 569,557 and 565,815 granted to the same inventors. U. S. P. 2,176,506 (Eastman Kodak) recommends an after-treatment with a melamine compound in a non-resinified state.

Fabric Finishing

(Continued from Page 15)

to these two types and other aldehyde resins which overcome some of the drawbacks of the first two are in the development stage and will undoubtedly prove of value for certain purposes. Method of application of these aldehyde resins for stabilizing and shrinkage is similar to that employed for crease resistance.

2. The second method uses simple aldehydes such as formaldehyde or glyoxal in place of the synthetic resins described above. Cloth is padded through the aldehyde solution together with an acid or acid forming catalyst, generally tenter dried with controlled tension and cured for several minutes at high temperatures. Neutralization of the treated goods is carried out by rinsing with a weak alkaline solution plus a small amount of a synthetic detergent. The cloth is finally slack dried and framed to the correct width.

3. The third process uses a strong solution of caustic soda to achieve shrinkage control. The cloth, which may be treated in the greige, boiled off or dyed state, is passed through approximately a 30 per cent solution of caustic soda, aired for a few seconds and then immediately neutralized by passing into a solution of sodium bicarbonate, or acid. A thorough rinsing completes the operation and the goods are slack dried and framed to width.

All of these processes require a high degree of technical control and supervision if uniform results are to be obtained. All of them have certain advantages and disadvantages and the use of any one of these treatments in the finishing of a particular type of cloth requires a careful consideration of a great many factors, such as for example, end use of the cloth, type of hand required, whether firm or soft, fiber content, type of weave and so forth. Only time will tell which of these processes will prove to be most acceptable to the trade as a whole, or whether some new process will shortly render them all obsolete.

Machinery

The use of stainless steel has become increasingly prevalent in modern textile finishing machines, particularly in dye jigs and vessels, pad boxes and continuous dyeing ranges. Its use results in better machine cleanliness and the amount of rehandling due to spots and stains is reduced. Mechanical aids so necessary for the controlled application of the durable dyes and finishes include "Microset" and pneumatic pressure controlled padders, overfeed pin and clip tenters, tensionless air driers and controlled temperature curing ovens. Most of the new type continuous dyeing machines are being equipped with devices which automatically control and record the temperature, the amount of feed liquors and in some cases even the pH of the dye liquors.

Electronic devices are being used as for example in the G.E. weft straightener and to control automatically the speed of different machines in range.

The effects of high frequency drying and curing and the use of infra red drying are also receiving careful study. In short, the machine builders are contributing their share in enabling the textile finisher to meet the exacting requirements called for in the production of the specialized finishes of today.

Cooperation

In conclusion, I should like to put in a plea for continued and increasing cooperation between the various branches of the industry, the yarn producer, the designer, the weaving mills, finishing plants and converters. The textile industry of today with its multiplicity of new synthetic fibers and finishes faces problems enough even with full cooperation on the part of all concerned. Without such cooperation we shall not be able to take full advantage of the possibilities that lie before us. Two notable examples

of the value of the cooperative efforts are the development during the war of the various nylon and high tenacity rayon parachute cloths and the development of the self-sealing water-repellent Shirley cloth. These problems could not have been solved as rapidly in any other way. We still have, and with new fibers and fiber blends arriving almost daily, will increasingly continue to have our problems, but if each of us has a little knowledge of what the other fellow is trying to do we shall all be able to do a better job.

Offhand I can think of two important problems which might be solved in this manner. Many of you are aware of the importance of denier staple length, and twist in the production of suiting, sportswear and dress-wear for the well-known crease-resistant finish. Such cloths when properly designed, executed and finished compare favorably in their appearance and properties with woolens and worsteds. One of the outstanding drawbacks of cotton dress fabrics today is their lack of such crush-resistance. Is it not conceivable that studies similar to those made on rayon might result in vastly superior cotton fabrics? Another important problem on which we do not have all the answers is the question of stabilization and shrinkage control of rayon fabrics. Different constructions vary enormously in what might be termed their relaxation shrinkage, and in their tendency to shrink progressively in successive washings. What are the reasons for these variations? Here again a cooperative study might result in a better end product.

TRADE NOTES • NEW PRODUCTS

• Joseph A. Bryant Retires

Joseph A. Bryant, Vice President, Boston Manager and a director of Arnold, Hoffman & Co., Inc., manufacturing chemists of Providence, R. I. has retired from active service as of January 1, 1947, at the age of 74, after 50 years with this one company.

Mr. Bryant is one of the most widely known and best liked chemical men in the New England area and is generally regarded as a topflight salesman. He was born on February 8, 1872 in Lawrence, Mass., and was educated in the public schools of that city. After a few years of business experience elsewhere, he became associated with Arnold, Hoffman & Co. at the age of 24. His record during the past 50 years has been one of steady advancement through sheer ability and force of personality.

Joseph A. Bryant

During the famous Boston police strike, when Calvin Coolidge was Governor of Massachusetts, Mr. Bryant was a captain of the emergency police force. He is also a member of the American Association of Textile Chemists and Colorists and a past president of the Drysalters Club of New England and a 33rd degree Mason.

His numerous friends hope that he will enjoy many years of well earned rest.

Roland Z. Farkas, Polytechnicum, Budapest, Hungary and Lowell Textile Institute, who has joined Texize Chemicals, Inc., Greenville, S. C. as Technical Director.

Mr. Farkas was formerly associated with Morton Chemical Co., Greensboro, N. C. He has had extensive experience in Textile Chemical Research and has developed several sizing materials for cotton, rayon and nylon. Most known among them, "Protobond" for filament nylon, and acetate yarns and T/C No. 325, for all types of spun yarn mixtures.

He will direct the new company's research and development in warp sizing materials, resin emulsions and synthetics.

• Awarded Gold Watches

Thirty-one employees of Stein, Hall & Company, Inc., and its subsidiaries, were honored for over 25 years of service by the presentation of gold watches at the Company's annual Christmas party held at the Savoy-Plaza Friday, the 20th of December.

Edwin Stein, President, and Morris S. Rosenthal, Executive Vice President, with 30 and 29 years of service respectively, were presented with their watches by A. L. Strasser, Chairman of the Board, and they in turn presented the rest.

Heading the list of men and women with the longest service in the firm were Miss Edna C. Turnbull, who joined the firm on October 1, 1908, and Elliot I. Stokes, who has been with the company since September 12, 1911. Miss Turnbull, who started as a clerk, is now assistant to the manager of the company's Boston Office and Mr. Stokes, who began as a salesman, is manager of the Philadelphia Office.

Others who received watches were:

W. R. Shepperd, E. M. Clevan, L. W. Peabody, H. W. Chobot, C. C. Parsell, M. M. Kroll, I. L. Griffin, J. J. Brown, J. J. Schultze, J. J. O'Rourke, T. G. Heiser, Don M. Hawley, Bella Levy, Almeda C. Schwarz, S. Hochberger, R. B. Bohaker, J. P. Strasser, Harry G. Roy, G. A. Krisan, C. H. A. Feuss, A. L. Hayes, Frank Hoar, Frank G. Milne, Joseph E. Hunt, Charles Berge, D. Mendolia, Rae B. Weinstein.

• Statement on New England Textile Foundation

Laurence F. Whittemore, President of Federal Reserve Bank, Boston, who is general chairman of the New England Textile Foundation's current annual campaign to raise $250,000.00 for the textile schools of New England, states that he wishes to correct two erroneous impressions, which seem to be prevalent regarding the Foundation' activities.

The first misconception is that the Foundation plans to use its funds as an endowment and to spend the interest only. Such is not the case says Mr. Whittemore. Each year the Foundation will spend a major part of its capital funds as well as the interest from same. It will retain in its treasury only enough of the capital funds to provide a cushion in lean years.

The second misconception is that the $250,000.00 sought in the current campaign is for use over a period of years. Here again such is not the case. $250,000.00 will take care of the requirements of New England's textile schools for one year only. An equal amount per year will be required at least for the next four years.

All four textile schools in New England have been requested to submit to the Foundation a budget of their financial requirements for the next four years, over and above what they will receive from regular sources. These requirements will include money needed to increase teacher compensation so that the schools can hold and attract the right kind of teaching talent; money needed to modernize equipment; and money for scholarships.

When the necessary funds are in hand, the Executive Committee of the Foundation will study the budgets submitted by the schools and will apportion the funds to these schools with due consideration for the size of the schools, the merit of its program, etc.

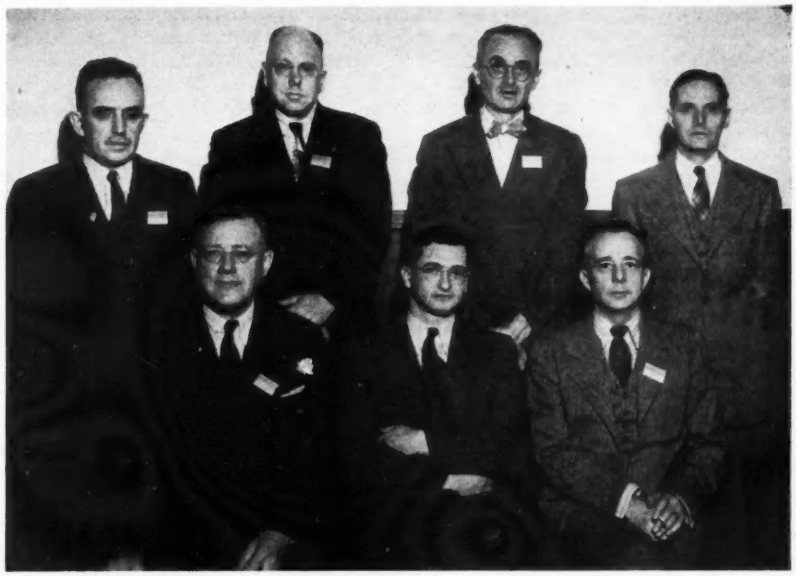
• Vice-Presidents, Mathieson

The Board of Directors of The Mathieson Alkali Works has elected D. W. Drummond and Arthur T. Bennett as Vice Presidents, it was announced by George W. Dolan, President. Mr. Drummond's new title will be Vice President-General Manager of Sales and Mr. Bennett's, Vice President-General Manager of Operations.

D. W. Drummond

Mr. Drummond joined the Mathieson organization in 1938 as assistant sales manager of the carbon dioxide division; a year later he was named sales manager of the division, then assistant general manager of sales of the company, and, at the time of his election to his new post, was general manager of sales. A native of Philadelphia, Mr. Drummond attended the University of Pennsylvania from which he graduated in 1926.

• Visit Aspinook Plant in Lawrence



Dyestuff producer and consumer meet as a group of DuPont Research Executives tour the Aspinook Corporation's large textile printing plant in Lawrence, Mass.

Shown after their inspection held in connection with the recent jubilee convention in Boston, of the American Association of Textile Chemists and Colorists are: (Front row, left to right) Dr. W. R. Waldron, head of Ponsol Colors Area Laboratory of DuPont Chambers Works; David X. Klein, Aspinook Director of Research; J. M. Tinker, director of DuPont's Jackson Laboratory. (Back row, left to right) S. Y. Alexander, member of DuPont's Boston sales office; Dr. C. W. Hannum, manufacturing supervisor; E. C. Buxbaum, DuPont research chemist and Dr. D. E. Kvalnes, azo dye division head in the Jackson Laboratory.

Arthur T. Bennett

Mr. Bennett was born in Saltville, Va., where one of the Mathieson plants is located. He obtained his education at Cass Technical School in Detroit, Michigan, Detroit University and Syracuse University. In 1933, he joined Mathieson as a technical assistant. Subsequently, he served as superintendent of the soda ash department at Mathieson's Lake Charles, La., plant, as assistant manager at the Saltville plant, assistant director of operations in New York, and, in 1943, became general manager of operations.

• Aridye Name Changed

At the close of business on December 31, 1946, Aridye Corporation, heretofore a wholly owned subsidiary, became a division of its parent company and is now known as Interchemical Corporation—Textile Colors Division.

Customer relationships, policies, management and personnel remain the same, the change being merely one in corporate organization. The Division will carry on the manufacture and sale of Aridye Pigment Colors and Interchem Dyes.

• Protonized Process

Development of a new woolen shrinkproofing process that, it is claimed, actually enhances fabric wearability is announced by the Alrose Chemical Company of Providence, Rhode Island.

The name of the process is Protonized, and its development is of especial interest to manufacturers of woolen hosiery, underwear, sweaters, and to processors of knitted and woolen fabrics who have long wanted a process which shrinkproofs and yet leaves the wool with a soft and lofty hand. It is stated that danger of felting is said to be eliminated.

It is claimed that extensive laboratory and mill tests have shown conclusively that the Protonized process, in addition to its shrinkproofing qualities, makes wool whiter, so white, in fact, that further bleaching often becomes unnecessary.

Tensile strength is said to be not affected, and dyeing properties are also said to be improved.

Technically, the process is described by its developers as based on the use of a novel chlorinating agent which liberates the chlorine slowly, giving uniform results and level dyeings. The degree of chlorination can be controlled to give the desired amount of shrinkproofing and feltproofing. The entire treatment is carried out in thirty to forty minutes at temperatures of 100 to 110 degrees. No special equipment is needed. The controls are simple and the method is said to be completely safe.

The process is equally applicable to wool stock, yarn, and finished woolens of woven or knitted fabrics, and can be used on rayon and cotton in wool mixtures without harming them. Wool so processed is said to show no increase in alkali solubility as compared with untreated wool, and the scale is not destroyed.

Several outstanding woolen hosiery manufacturers have already been licensed to use the Protonized process, and all are said to report favorable results.

• New Name for National Oil

Directors of National Oil Products Co., Inc., have voted to change the company's name to Nopco Chemical Company, subject to approval of stockholders at their annual meeting in March.

"The proposed change in name," Charles P. Gulick, president, said, "is in recognition of the company's vastly increased sphere of operations and the number and diversity of its products and markets. The corporation is not an oil company, as its present name would imply, but a chemical manufacturing company. Nearly all of its products are manufactured from oils, fats and waxes by processes involving chemical reaction.

"When the business was founded nearly forty years ago, only one product was manufactured at a single plant in the East. Thanks largely to continuous and extensive research, hundreds of products now are manufactured in plants extending from Coast to Coast. Output includes various chemical products employed in numerous industrial processes, metallic soaps, vitamin products and concentrates, male hormones and other pharmaceuticals, shampoos and cosmetic creams. Many of these products are marketed under the "Nopco" trade name, and it is by this name that the company has long been generally known in the trade."

• General Manager, Anchor Color

Elliott D. Cole has been appointed General Manager of the Anchor Color & Gum Works Division of Arnold, Hoffman & Co., at Dighton, Massachusetts, as of January 1, 1947. He succeeds Frederick W. Mayer, who is retiring after 40 years of service with the company.

Elliot D. Cole

Mr. Cole is a graduate of Bradford-Durfee Textile School (Class of 1917) and was employed for some years after graduation by Mount Hope Finishing Company, as a chemist. He went with Anchor Color and Gum Works on May 2, 1920 as a chemist and has acted as assistant manager for approximately 10 years. Mr. Cole is a native of Dighton, Massachusetts and was born there on June 3, 1896.

• Officers, TCCA

At the thirty-first annual business meeting of The Textile Color Card Association, 200 Madison Avenue, two new directors were elected for the ensuing year as follows:

Henry C. Van Brederode, Vice-President, Celanese Corp. of America.

Charles F. H. Johnson, Jr., Vice-President and General Manager, Botany Worsted Mills.

The directors reelected to serve on the Board are E. Irving Hanson, Allan C. Jacobson, Carl E. Kempf, W. Ralph MacIntyre, James F. Marble, William B. Olmsted, Jr., Charles Pinneli, Armand Schwab, Roy E. Tilles and John F. Warner.

At a meeting of the directors held immediately after, the following officers were elected for the ensuing year:

President: Roy E. Tilles, (Gotham Hosiery Co., Inc.).

1st Vice-President: Armand Schwab, (Armand Schwab & Co.).

2nd Vice-President: John F. Warner, (Riegel Development Laboratories, Inc.).

Treasurer: Carl E. Kempf, (Brewster Hat Co.).

Secretary and Managing Director: Margaret Hayden Rorke.

• International Exposition of Textiles

Over 75 per cent of the exhibit space on the first three floors reserved for the U. S. trade at the International Exposition of Textiles, Trimmings and Factory Equipment to be held at the Grand Central Palace, New York, June 2-7, 1947, both dates inclusive, has already been contracted for, according to Arthur Tarshis, president of the company managing the Exposition. Executive offices of the Exposition are at 36 West 47th Street, New York.

"Many of the exhibitors," said Mr. Tarshis, "are planning to use the Exposition to launch their latest developments in postwar textile fibers, fabric weaves and finishes, the result of five years of research and development during the wartime period.

"During the war, textile research both here and abroad was intensified. Many improvements in fibers, fabrics, finishes and manufacturing processes resulted from the vital needs of the armed forces stationed all over the globe. With other products, wartime research in chemical laboratories, and among textile engineers and research teams in mills and plants, served to point the way for future development, so that they might be adapted to the civilian market. The research and development work is still going on, and the end results of the bulk of it will be brought out for the first time at the Exposition.

"The Exposition will cover all four floors of Grand Central Palace, supplementing the U. S. exhibits on the first three floors; the fourth floor, with room for 100 exhibitors, will be given over entirely to showing by textile trade factors from France, Italy, Sweden, Belgium, Great Britain, South America, and other countries."

• Boston Manager, Arnold, Hoffman

Effective January 1, 1947, William T. Clark became manager of the Boston Office of Arnold, Hoffman & Co., Inc., manufacturing chemists. He succeeds Joseph A. Bryant who is retiring after 50 years of service.

Mr. Clark has been with Arnold, Hoffman & Co. since July 1943 and has served as assistant to Mr. Bryant during that time. He is 33 years old and a graduate of New Bedford Textile School. Previous to his present connection he was employed by Algonquin Print Works, Fall River, Bath Mills, Bath, S. C. and Arkwright Corporation of Fall River,—with the latter company as boss dyer.

SANDOZ PRESENTS *The color achievement of the month*

Pedigreed Fabrics by

AIREDALE WORSTED MILLS

There's a full strain of quality in these Airedale fabrics...suit of Lippitt Venetian Covert worn by Jean Sullivan of the movies and the suit and topcoat of Airedale gabardine worn by Helmut Dantine.

Many fabric leaders, like Airedale Worsted Mills, Inc., consistently specify Sandoz colors because they count not only on high technical standards but also on a research department which is responsible for colors of high efficiency in handling and extreme fastness to mill and wearing conditions.

For example, the Vitrolan (Chromiferous) colors used in the garment illustrated at left, are recommended for such special manufacturing conditions as on fabrics brought directly from the carbonizer to the dye bath. The colors have excellent level dyeing properties and can be depended upon to meet the consistently more rigid retail standards for light and perspiration.

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements. Sandoz application laboratories are located in New York, Boston, Philadelphia, Los Angeles, Charlotte, Toronto, where stocks in wide range are carried. Other branches are in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC.
61 VAN DAM STREET
NEW YORK 13, N. Y.

SANDOZ *thinks ahead with textiles*

SANDOZ

Good CHEMICALS for COTTON

VIRGINIA SODIUM HYDROSULFITE

$Na_2S_2O_4$

VIRGINIA Hydrosulfite is a concentrated, white, stable, free-flowing uniformly crystalline powder, readily soluble in water. 100 lbs. of water at 68° F. will dissolve 21.8 lbs. $Na_2S_2O_4$. Easy and complete solubility, and carefully controlled particle size recommend VIRGINIA "Hydro" as a preferred reducing agent for vat dyeing and stripping. Shipped in air-tight steel drums, 250 lbs. net weight.

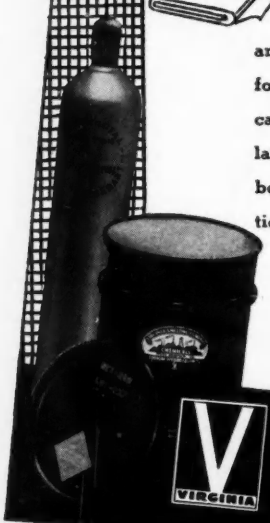
Shipment will be made from West Norfolk, Va., in Carload and Less Carload lots; L. C. L. shipments from stocks in Boston Chicago, New York, Philadelphia, Charlotte and Atlanta.

"ESOTOO"

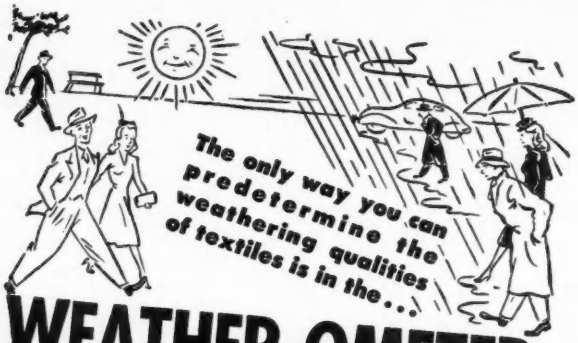
Liquid SO_2

VIRGINIA "ESOTOO" is an ideal antichlor. Its popular adoption has followed the development of a practical semi-automatic method for regulating SO_2 concentrations in the sour box. Write for a complete description of the VIRGINIA method.

VIRGINIA "ESOTOO" is shipped in steel cylinders 150 lbs. net weight.



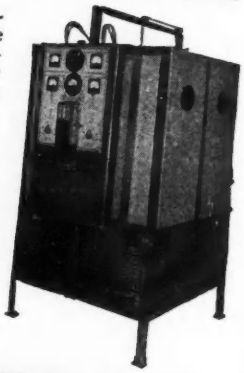
VIRGINIA SMELTING COMPANY
WEST NORFOLK, VIRGINIA
New York • Philadelphia • Boston
Charlotte • Detroit



WEATHER-OMETER

• The deteriorating effect of exposure to weathering in actual use must be known by textile manufacturers. The Atlas Weather-Ometer brings these weathering conditions right into your laboratory where dyestuffs and fabrics can be tested and reliable results obtained.

A few weeks exposure in the Weather-Ometer with a cycle of controlled light, water spray, and selected temperature and humidity, equals years of outdoor service. Safe to operate 24 hours a day without attention.



Used all over the world — Weather-Ometers, Launder-Ometers, Fade-Ometers

ATLAS ELECTRIC DEVICES CO.
361 West Superior Street, Chicago 10, Illinois

IDAHO Potato Starch

"THE FINEST MADE"

MAGIC VALLEY PROCESSING COMPANY
OF IDAHO

•

ST. ANTHONY STARCH COMPANY, INC.
OF IDAHO

•

MENAN STARCH COMPANY, INC.
OF IDAHO

DISTRIBUTED BY
AMERICAN KEY PRODUCTS, INC.
15 PARK ROW • NEW YORK 7, N. Y.

FOR INSTANT WETTING...

WETSIT

• This improved synthetic surface-active agent reduces surface tension, increases penetration, and overcomes the weakness of soap. Its use saves time in processing, reduces cost of detergents, and assures an improved and uniform finished product.

A clear liquid, Wetsit is completely soluble in water in any proportion. It will not injure the most delicate fabric and can be removed with a minimum of rinsing. Efficient, low in cost, Wetsit is available in various concentrations for different purposes.

Write for free samples.

Available In These Concentrations:

WETSIT SINGLE • WETSIT WP LIQUID

WETSIT EXTRA • WETSIT W-1086M

WETSIT W-1235 (Solvent Soluble) • WETSIT CONC.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

OTHER PLANTS: CARLSTADT, N. J. • LOS ANGELES, CALIF.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Knoxville, Tenn.

QUALITY RICHMOND PRODUCTS

CUT DOWN DYEHOUSE
Headaches
USE

DYETEX

- Disperses Dyestuff
- Scours
- Used in Scrooping

DYETEX

Send for free sample and full information

RICHMOND OIL, SOAP & CHEMICAL CO., Inc.
1041-43 FRANKFORD AVE., PHILADELPHIA 25, PA.

SCOURING WETTING
PINE-SOLVENT
BLEACHING DYEING

CUT TIME AND COST—IMPROVE RESULTS IN ALL WET PROCESSING WITH BURK-SCHIER PINE SOLVENT XX

Burk-Schier Pine Solvent XX Reduces Surface and Interfacial Tensions . . . Wets, Penetrates, Suspends, Disperses . . . Aids Detergents and Dyes. A Little Does a Lot and Does It Well.

COTTON: In the kier, Pine Solvent XX brings the liquor in contact with every fiber, leaves uniform bottoms that dye and finish more evenly. Boiling time is cut. Fibers are softer, fuller, more resistant to age-discoloration.

WOOL: Pine Solvent XX is valuable in raw-wool scouring . . . irreplaceable in fulling. From the raw stock it produces clean, soft, really white wool in prime condition for storage or further processing. In the fulling mill, it cuts time as much as 30% . . . costs no more . . . helps you meet contract delivery dates on time.

RAYON: In boiling off, Pine Solvent XX rapidly emulsifies gelatinous materials . . . is safe for the most delicate fabrics. Used in dyeing, it makes the fabrics wet out and sink quickly.

DYEING: Pine Solvent XX makes dye liquor penetrate the hardest fibers and heaviest seams. It gives an even, level deposit of dyestuff of uniform depth throughout every fiber. Loose dyestuff and impurities are suspended for washing out completely.

PRINTING: In printing paste, Pine Solvent XX wets pigments thoroughly, disperses them evenly, and holds them in suspension without agglomeration and until the design is on the fabric. Designs are sharp, colors bright and clear, no specks are formed.

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE
MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

DEXTER

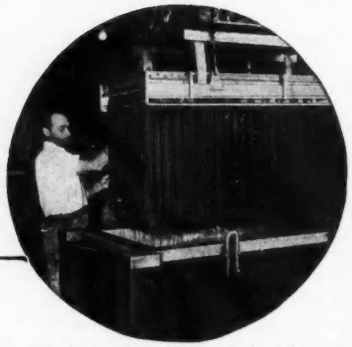
• *Does the shortage and high price of soaps and detergents bother you?*

Consult Dexter
INDUSTRY'S RIGHT HAND

Dexter Chemical Corporation
TEXTILE CHEMICAL DIVISION
819 EDGEWATER ROAD, NEW YORK 59, N. Y.

Clearer, more even dyeing, *faster* with

Laurel
WOOL SCOURING COMPOUNDS



YOU are sure of clean, soft wools and worsteds, clearer, more even dyeings when you use Laurel Scouring Compounds. Known for their speedy detergent action and used by leading mills for over thirty-five years, Laurel Scouring Compounds remove grease, oil, dirt quickly, economically, without injury to fibers. Keep mineral oils in suspension. Leave wool lofty and with soft hand . . . level dyeing. Available now. Send for trial order today. Let Laurel Scouring Compounds help you improve quality production and deliveries.

LAUREL WOOL OILS • LAUREL FULLING COMPOUNDS

• SOAPS • OILS • FINISHES •
LAUREL SOAP MANUFACTURING CO., Inc.
Wm. H. Bertolet's Sons • *Established 1909*
WAREHOUSES—PATERSON, N. J. • CHATTANOOGA, TENN. • CHARLOTTE, N. C.
OFFICES—2601 East Tioga Street, Philadelphia 34, Pa.

ENGRAVERS OF

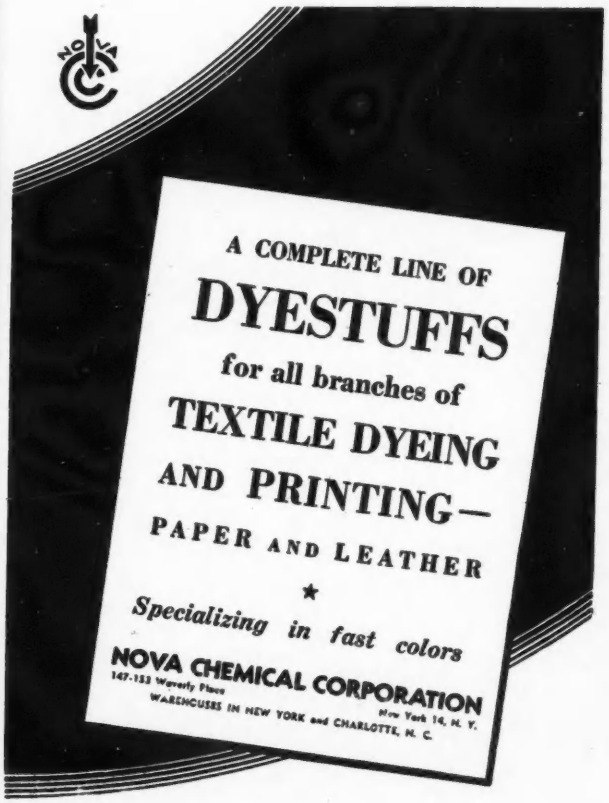
Textile and Plastic Printing Rolls

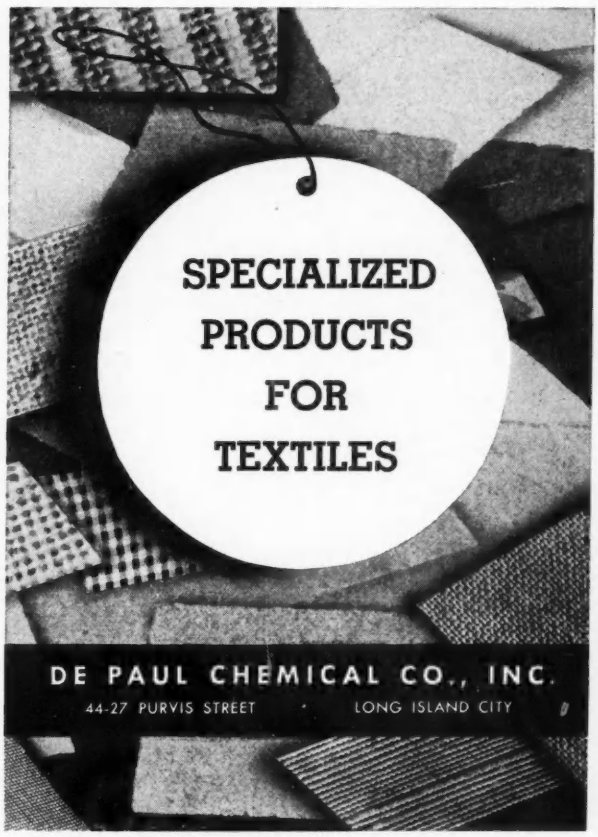
Economies in color used—and efficient application of the design to the textile or plastic being printed are indicated by the past experience of users of Linotone engraved rolls.

Send us details of your problem and let us see if we can help you.

LINOTONE CORPORATION

559 W. 35th Street, New York 1, N. Y.





• CLASSIFIED ADVERTISEMENTS •

The rate for "Position Wanted" advertisements in this column is 2 cents a word—with a minimum of 50 cents per insertion. For all other types of advertisements—i.e., help wanted, machinery or supplies for sale—the rate is $7.50 per column inch or less per insertion.

CONFIDENTIAL EMPLOYMENT SERVICE—For Dyers, Chemists, Colorists, Managers, Superintendents and others seeking positions and for employers seeking men. Charles P. Raymond Service, Inc., 294 Washington St., Boston, Mass. Over 45 years in business.

POSITION WANTED: Textile Chemist and Colorist Over 15 years experience in textile laboratory work. Thoroughly familiar with printing, dyeing and padding of all fibers and current plant practices in application and finishing. Also some resin experience. Interested in new research, technical sales or application laboratory. Write Box 159.

WE BUY YOUR EXCESS INVENTORY OF DYESTUFFS AND INTERMEDIATES. WRITE BOX 157.

WANTED: Jig Dyer Experienced Acetate Rayon and Vats. Metropolitan Area. State age, experience, salary expected. Write Box 161.

POSITION WANTED: Textile Resin Chemist, experienced in formulation, production and mill practice in coating, printing and finishing, seeks position in formulating solutions and emulsions to meet specific customer requirements and or to develop new formulae. Write Box 162.

WANTED: SALESMAN - TECHNICIAN, man with broad experience in both selling and technical "trouble shooting" to call on textile mills, also on paper industry, as representative of highly regarded, old established chemical firm. State full details. Write Box 163.

WANTED: CHEMICAL ENGINEER-TEXTILE SPECIALTIES. Progressive chemical company presently active in development of new chemical textile specialties wants chemical engineer or chemist (preferably under 30) for pilot plant work to take laboratory process data and expand same to basis for commercial operation including pilot plant sample production. Location Virginia. Write Box 164.

WANTED

By Large Machinery Exporter. Dyehouse Machinery and Auxiliary Equipment. Also interested in Complete Units.

Write Box 138

WANTED—

CHEMIST—

CHEMICAL ENGINEER

Preferably with textile background. Must be able to correlate plant and laboratory operations. Excellent opportunity for man possessing necessary initiative and aggressiveness. Salary commensurate with ability. In reply, give age, full details of education, and previous experience.

Write Box 160

WANTED: Salesmen with knowledge of Textile Printing for the sale of pigment colors for Southern or New England territory. Write Box 165.

REPORTER

CLASSIFIEDS

BRING RESULTS!

"WAPACO" PRODUCTS
Serve the Textile Industry

WATSON-PARK CO. Wapaco Leads BOSTON, MASS.

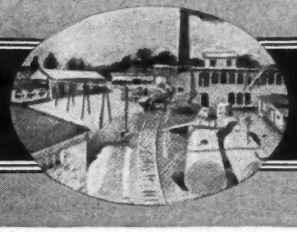
DYESTUFFS
CHEMICALS
TEXTILE SOAPS
TEXTILE OILS
STRIPPING COMPOUNDS

CALEX CRYSTALS
(Calgon Agglomerated)

For years this outstanding product has assisted mills in obtaining peak production in the dyeing and finishing operations.

INSTANTLY SOLUBLE, it saves labor when today labor costs are a chief factor in the ultimate price of a fabric.

For treating pulled wool, hard water conditions, and as a soap saver, CALEX CRYSTALS has no equal.



Factory
LOWELL JCT.
MASS.

WATSON-PARK COMPANY
261 FRANKLIN STREET · BOSTON, MASS.

QUALITY RICHMOND PRODUCTS

Less Handling with

AFTER CHLOR
Eliminates 3 to 5 Handlings

Bleach with
Hypochlorite
Rinse and Use

AFTER CHLOR
THAT'S ALL!

Write for FREE Sample

RICHMOND OIL, SOAP & CHEMICAL CO., Inc.
1041-43 FRANKFORD AVE., PHILADELPHIA 25, PA.

SYNTHETIC DETERGENTS
ANILINE COLORS
NATURAL DYESTUFFS
SIZINGS and FINISHING MATERIALS

UNITED
CHEMICAL PRODUCTS
CORPORATION

Main Office:
753 MONTGOMERY STREET · JERSEY CITY 6, N. J.
Plant:
YORK AND GOLGATE STREETS · JERSEY CITY 2, N. J.
Branches:
GREENSBORO, N. C. · PAWTUCKET, R. I.
Western Agents: CHEMICAL PRODUCTS CO., AURORA, ILL.

10 PRODUCTS of Proven Dependability

WHICH SHOULD WARRANT ★ YOUR ATTENTION ★

***AQUAROL :** A water repellent for processing woolen, cotton and rayon fabrics, also produces excellent results in splashproofing or finishing all types of hosiery.

***PARAMINE S :** A cation active softener for processing cotton and rayon cloth to obtain a soft, smooth, pleasing finish.

***ALGEPON S :** An assistant in dyeing vat colors to prevent premature oxidation of the reduced bath and eliminate uneven dyeings.

***ALGEPON V A :** Assistant for stripping vat colors—complete reduction of color in stripping bath providing lighter bottom for redyeing.

***PARAPON S A :** A highly efficient leveler and softener for dyeing and finishing all types of yarn, cloth and hosiery to produce a uniform dyeing and a soft full hand.

***ARIPEL F S :** Finish and gas inhibitor for processing dyed acetate rayon—produces a soft full feeling finish and prevents gas fading of the color.

***LANITOL F :** A synthetic detergent possessing exceptional scouring and washing properties for processing wool, cotton, rayon or nylon.

***CULOFIX :** Used as an after treatment in last rinse to prevent bleeding of direct dyed cotton or rayon in water.

***DIAZONOL A C :** For boiling out cotton cloth in pressure or open kiers to produce greater absorbency and cleaner material. Excellent for preboiling knitted cloth in preparation for chlorine bleach. Also used with good results for boiling out cotton or rayon cloth on the jig.

***TETRANOL 1638 :** A rapid wetting and penetrating agent. Active in acid, alkaline and salt solutions and not affected by hard water, may be used in all types of dyeing operations to insure positive penetration of color and a uniform and solid shade.

And a Complete Line of Oils, Chemicals, Softeners and Finishes For Wet Processing All Textile Fibres

*Reg. U.S. Pat. Off.

ARKANSAS CO. Inc.

Newark, New Jersey

ESTABLISHED OVER 40 YEARS

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Shortage of BON?

don't worry...

Hydroxanil

TAKES ITS PLACE!

TRUE wash fast DEVELOPED BLACKS giving uniform results from batch to batch are assured with HYDROXANIL and Maracel Developed Black A. Blacks produced with HYDROXANIL require no shading with orange or yellow as customary with BON thereby eliminating yellow stains on white trimmings.

SAVES TIME and TROUBLE

HYDROXANIL is simple to use—requires no caustic soda. Simply stir into boiling water and add to developing bath. Developing may be carried out in the diazotizing solution if desired to save additional rinsing operations and running time. (Simple instructions sent upon request). HYDROXANIL may be added at any pH range from 4½ to 7 and will operate at any temperature from 100° to 140°F.

...Develops Complete in 30 Minutes!

No excess rinsing or soaping required! Two batches dyed in the time usually required for one.

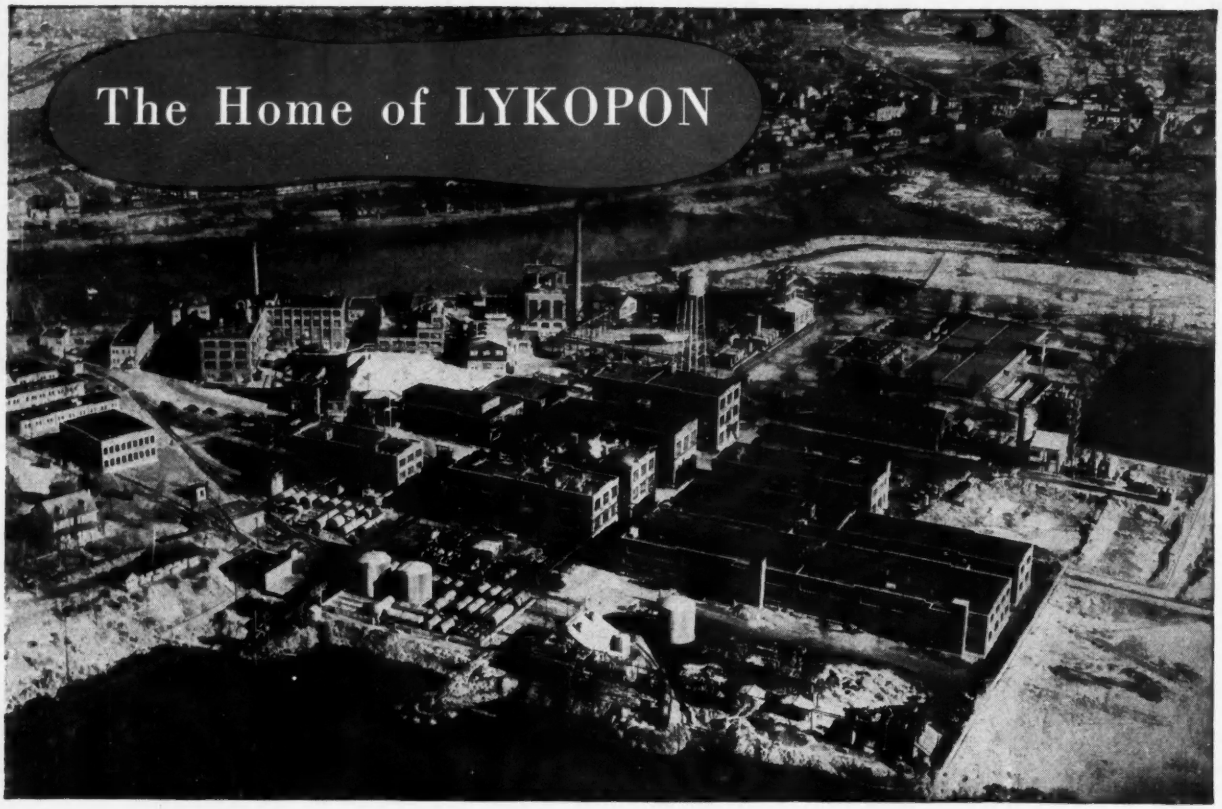
MARCO PRODUCTS

MAHER COLOR & CHEMICAL CO.

FACTORIES AND LABORATORIES

355 West Ontario Street, Chicago 10, Ill.

2327 East Eighth Street, Los Angeles 21, Calif.



. . . and other reliable textile chemicals

THE SERVICE THAT BUILT OUR BUSINESS CAN HELP YOURS

Our business has been built largely on the practical help we have been able to give our customers, right in their own plants, in adapting Rohm & Haas products to their needs.

Our representatives are men with technical training and practical experience in the use of industrial chemicals. Call in a member of our textile chemicals department when you need assistance in choosing or using . . .

Chemicals For Fine Textiles

This is the Bristol, Pa. plant of the Rohm & Haas Company, where many of the long line of dependable textile chemicals are produced.

LYKOPON . . .	The first Sodium Hydrosulfite—and still the foremost.
FORMOPON . . .	Sodium Sulfoxylate Formaldehyde — the industry's standard for purity and performance.
PROTOLIN . . . **PROTOLIN W . . .** **FORMOPON EXTRA . . .**	Zinc Hydrosulfite and Zinc Sulfoxylates — dependable reducing agents for stripping every fiber.
RHOZYME DX . . . **RHOZYME PF . . .**	Textile enzymes — stable powders for the uniform desizing of all fabrics.
RHOPLEXES . . .	Acrylic Resins in a complete range of modern finishes for quality textiles.

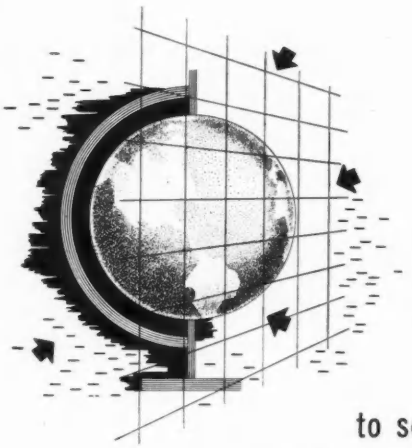
LYKOPON, FORMOPON, PROTOLIN, RHOZYME & RHOPLEX *are trade-marks, Reg. U. S. Pat. Off.*

Represented in Canada by Rohm & Haas Company of Canada, Ltd., Toronto; and in South America by Cia. Rohm y Haas, S. R. L., Carlos Pellegrini 331, Buenos Aires, Argentina, and agents in principal South American cities.

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Manufacturers of Chemicals for the Textile, Leather and other Industries . . . Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes



Spin the Globe...

There's a FALLEK Representative Everywhere!

Here is your opportunity to secure World Wide Distribution for American Dyestuffs ...

READ THESE FIGURES!

92% of the world's total exports in Coal-Tar Colors, Dyes and Stains were supplied by Europe to the rest of the world.*

4.6% of the world's total exports in Coal-Tar Colors, Dyes, and Stains were supplied by the United States to the rest of the world.*

With foreign production at a minimum level, now is the opportune time for American Suppliers to secure a solid foothold in the most lucrative overseas markets . . . and here is how FALLEK can help you:

FALLEK . . . eliminates costly credit risks. *You receive your check when your goods are ready for shipment* . . . as simple as a domestic transaction, but larger profits.

FALLEK . . . creates an acceptance for your products throughout world markets that assures continuous business.

FALLEK . . . gains you the proper entree with leading firms of known responsibility.

FALLEK . . . gives you intelligent, daily sales coverage through representatives located in every world market.

FALLEK . . . means permanence, through long established outlets in Europe, Latin America, and the Orient.

FALLEK . . . saves you the detail handling and numerous expenses of operating an export department.

FALLEK . . . brings you men of wide experience, men highly skilled in the problems of world distribution . . . plus skilled technicians in every foreign office fully equipped to render all the technical information necessary to users of American Dyestuffs.

American dyestuffs for textiles, leather, paper, etc., are in urgent demand throughout the world. You can realize a sizeable share of this business by making FALLEK your foreign selling agents. THIS is the time to safeguard profits against the hazards of "buyer's market" or a falling off in domestic demand, by developing a substantial export volume. FALLEK can do this for you.

**U. S. Tariff Commission Report No. 19 last pre-war figures*

WRITE, WIRE OR PHONE FOR FURTHER INFORMATION.

FALLEK PRODUCTS COMPANY, INC.

149 BROADWAY • NEW YORK 6, N. Y.

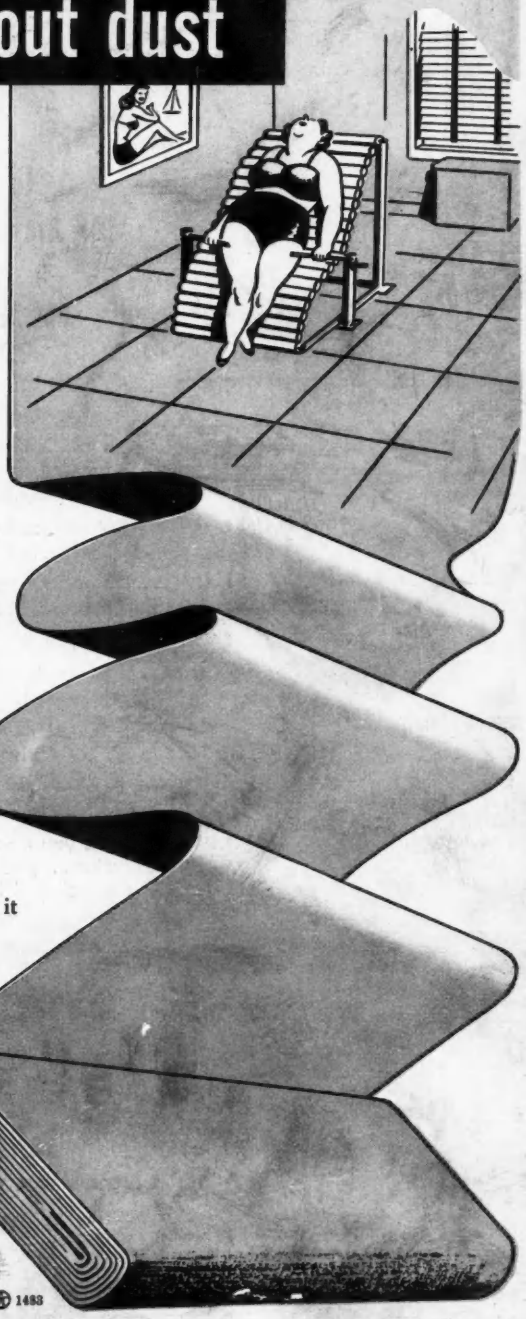
SPECIALISTS IN ORGANIC CHEMICALS

GREENVILLE PUBLIC LIBRARY
DO NOT CIRCULATE

this is reducing

DO NOT CIRCULATE

this is reducing without dust



*as found in VATROLITE**

(granular reducing agent)

Dust does make a difference in a reducing agent. Ask any user of VATROLITE, the concentrated Sodium Hydrosulphite that's not-too-coarse, not-too-fine. He'll tell you the extreme granular uniformity of VATROLITE eliminates any risk of dusting. And no matter how he uses VATROLITE . . . for stripping color from cotton and rayon fabrics . . . as a reducing agent in vat dyeing . . . for removing rust stains . . . he'll tell you VATROLITE handles easily—without skin irritation from dust particles. VATROLITE is amazingly free from dust!

Yet, this is just *one* of the superior qualities of VATROLITE. There's its *high stability:* if kept dry, VATROLITE retains its high reducing strength over long periods. There's its *slow decomposition,* which assures cleaner looking, more even dyeing. There's Royce's *strict manufacturing control,* insuring day-in-day-out uniformity . . . to give you consistently excellent results.

And there's a Royce representative near you who'll be glad to help with your particular problem. Contact him today and benefit from his years of experience with textile chemicals. Get a generous sample of VATROLITE and try it on your own work. Once you've seen its concentrated power at work—and seen how easily it handles—you'll probably say "VATROLITE is *my* reducing agent" . . . from then on!

ROYCE CHEMICAL CO.

*Registered trade mark

ROYCE CHEMICAL CO.

CARLTON HILL, NEW JERSEY

MANUFACTURERS OF VELVORAY*, PAROLITE*, NEOZYME*, DISCOLITE*, FABRITEX*, TEXTILE GUMS*, CASTROLITE*

1453

DO NOT CIRCULATE
DO NOT CIRCULATE